DEVELOPMENT, GROWTH, AND STATE OF THE ATOMIC ENERGY INDUSTRY

HEARINGS

BEFORE THE

JOINT COMMITTEE ON ATOMIC ENERGY

CONGRESS OF THE UNITED STATES

EIGHTY-FOURTH CONGRESS

FIRST SESSION

ON

DEVELOPMENT, GROWTH, AND STATE OF THE ATOMIC ENERGY INDUSTRY

PART 2 OF THREE PARTS

FEBRUARY 7, 8, 9, AND 10, 1955

Printed for the use of the Joint Committee on Atomic Energy

UNITED STATES
GOVERNMENT PRINTING OFFICE
58131 WASHINGTON : 1955

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DEVELOPMENT, GROWTH, AND STATE OF THE ATOMIC ENERGY INDUSTRY

MONDAY, FEBRUARY 7, 1955

CONGRESS OF THE UNITED STATES,
JOINT COMMITTEE ON ATOMIC ENERGY,
Washington, D. C.

The Joint Committee met at 2:00 p. m., pursuant to adjournment, in room P-64, the Capitol, Senator Clinton P. Anderson (chairman of the Joint Committee) presiding.

Present: Senators Anderson (chairman), Hickenlooper, Bricker, and Pastore; and Representatives Durham, Holifield, Price, Cole, and Patterson.

Present also: Corbin C. Allardice, executive director; George Norris, Jr., counsel to the Joint Committee; and Walter A. Hamilton of the professional staff of the Joint Committee.

STATEMENT OF WALKER L. CISLER, PRESIDENT, THE DETROIT EDISON CO., APPEARING AS CHAIRMAN, MANAGEMENT COMMITTEE, ATOMIC POWER DEVELOPMENT ASSOCIATES

Chairman ANDERSON. The meeting will come to order, please.

Mr. Cisler, I believe you are to be the first witness.

This is the beginning of what might be called the second series of statements and presentations. The first part of the testimony was presented by the members of the Atomic Energy Commission and the staff, and now we have asked firms, persons, individuals, and organizations that are interested in the peacetime uses to appear and make statements.

I am very happy to welcome back to the committee Mr. Walker L. Cisler, president of the Detroit Edison Co. He has appeared here before, and we are always glad to have you with us.

Representative COLE. I think it is very fortunate that the first witness appearing in this series of discussions, representing the private enterprise end of this new operation, should be Mr. Cisler, because he has been in the forefront for many years, and was one of those who was most persuasive in inducing the Congress to make the adjustments in the act to make it possible for private enterprise to become engaged. I do not know whether it is by happenstance, but anyway it is a good augury that Mr. Cisler is the first witness.

Chairman ANDERSON. I am glad Mr. Cole made that statement. I am sure he expresses the sentiment of all of us.

Proceed, Mr. Cisler.

Mr. CISLER. Mr. Chairman and members of the Joint Congressional Committee, my name is Walker L. Cisler, and I am president of the Detroit Edison Co.

I am very happy to have the privilege of again appearing before your committee as it has always been most helpful to do so in furtherance of our endeavors. Before presenting my testimony, I wish to introduce to you others who are with me today in support of the testimony presented.

They are Clarence A. Dauber, director of civil and mechanical engineering, the Cleveland Electric Illuminating Co.; George Bissell, vice president, Potomac Electric Power Co.; Alton P. Donnell, project manager, Atomic Power Development Associates; James F. Fairman, vice president, Consolidated Edison Co. of New York, Inc., and a member of the executive committee; Robert E. Ginna, executive vice president, Rochester Gas & Electric Corp., and a member of the management committee: Arthur S. Griswold, assistant to the president, the Detroit Edison Co.; Kilshaw M. Irwin, vice president, Philadelphia Electric Co., a member of the executive committee; Paul W. McQuillen, a member of the firm of Sullivan & Cromwell, who is chairman of the legal committee of the Atomic Power Development Associates; J. Frank Roberts, vice president, Allis-Chalmers Manufacturing Co., a member of the executive committee; Arvin E. Upton, a member of the firm of LeBoeuf, Lamb & Leiby, who is Washington counsel for Atomic Power Development Associates; Harvey A. Wagner, assistant manager of engineering, the Detroit Edison Co.

I am appearing here today as chairman of the management committee of Atomic Power Development Associates, a group of 33 companies, listed in exhibit A. These companies are engaged in a research and development project to develop means by which atomic fuels may be utilized on a commercially competitive basis. All are sharing in the expense of the work.

In 1953 and again in 1954 I appeared before this committee to present our reasons for requesting that the Atomic Energy Act of 1946 be amended. My purpose today is to tell you what we have been doing and what we propose to do since the amendment of the law, and how we are responding to the announcements of policy made by the Atomic Energy Commission on January 10, 1955.

Following my own statement I will ask Mr. Paul W. McQuillen, chairman of the legal committee of the Atomic Power Development Associates, to discuss briefly certain provisions of the law.

It is important to realize that our group, which had its beginning early in 1951, has been making full reports of its work to the Atomic Energy Commission, and that all knowledge which members of the group expect to gain will be made available, without cost, to the Commission.

During the course of our activities we have been and are willing, consistent with security considerations, to discuss our work freely with anyone. We believe and have advocated that more and more people become apprised of the research and development work. Without this, atomic energy cannot assume its proper place in our industrial and economic lives. We never have advocated the exclusion of anyone if they can meet the security requirements established by the Commission.

Let me assure you that in no way will any windfall come to this group. On the contrary, the results will be industry's contribution to developing the full use of another natural resource as a substitute for conventional fuels. To think otherwise is to ignore the realities.

At present, the problem is to achieve means whereby atomic fuels may come even close to being competitive with the conventional methods of producing electricity. We fully expect the development will progress, some time later, to the point where reductions in the costs of producing power and supplying it to the customer will be realized. You may be sure that when that time comes the savings will be properly reflected in rate schedules. The State public service commissions may be depended upon, if necessary, to audit the utilities' costs.

In our testimony of May 10, 1954, and supplemented by our statement of May 24, 1954, we informed your committee that our group, then known as the Dow Chemical-Detroit Edison & Associates, planned a research and development program to continue through 4 or 5 years and that our budget for 1954 totaled $2.6 million. Of this total, $2.1 million represented work to be done in private facilities at the expense of the project companies, and the remaining $500,000 was an estimate of work to be performed for us in the national laboratories, largely as a part of the Commission's own programs.

We have carried out our 1954 program approximately as we had planned, and expenditures and commitments for the year totaled $1.9 million. We have benefited from work performed by the Commission in its laboratories as a part of its regular programs, probably to the extent anticipated.

We have a group of more than 50 people working full time on our project. Among them are skilled and experienced physicists, chemists, engineers, and metallurgists, many of whom are recognized as authorities. Other specialists are engaged in directing research and development projects and in coordinating and evaluating the results. We believe they are as competent as any group in the business. We have supplemented this group by retaining some of the top consultants in the field.

The important fact which I wish to bring to your attention is that we have appreciably stepped up our program as a result of the new law. We have reexamined the previously established schedules for our research, and are now trying to accelerate many aspects of that work.

Representative COLE. Mr. Chairman, do you deliberately skip a paragraph?

Mr. CISLER. It is not in my copy. That was put in larger type for me.

The project work now planned for 1955 has an estimated cost of $3,815,000, and a budget to cover this was approved by our management committee at a meeting in New York on January 31, 1955. As was the case last year, most of this amount will be spent on research and development in private facilities.

The important fact which I wish to bring to your attention is that we have appreciably stepped up our program as a result of the new law. We have reexamined the previously established schedules for our research, and are now trying to accelerate many aspects of that work. For example, we had planned to construct a facility in 1956 or 1957 for the testing of prototypes of reactor components.

Now, however, we have decided to begin this work in 1955. We have already contracted for the design and construction of a section of a steam generator. Fabrication of the unit is now underway.

As you know, this is the equipment in which heat produced in the reactor will be used to generate steam. When this steam generator has been constructed we will install a liquid sodium system which includes piping, pumps, and control equipment, and thus will be able to determine how equipment of such large size performs. At the same time we shall obtain much valuable information not now known concerning large-size liquid metal coolant systems.

Many other similar tests are planned and will be started within the year. The cost of this test facility and the work which will be done there will be well over $2 million, one-third of which is to be spent this year.

The stepped-up development program, however, is not the only activity which can be identified in our project as resulting from the enactment of the new law. Since last July, as the result of suggestions by the Commission, we have been giving a great deal of thought to the matter of undertaking the actual construction of a developmental reactor at an early date in order to obtain operating experience which will provide the basic knowledge required for the subsequent construction of improved reactors. With the announcements by the Commission on January 10 of its policies and prices, we are now in a position to make definite plans.

In order to determine whether a developmental reactor can be undertaken now, we have had to consider innumerable factors. We have reviewed in detail the state of the art with respect to fast neutron breeder reactors, to determine their present feasibility. We have concluded that a large breeder reactor capable of producing up to 100,000 kilowatts of electricity could be undertaken at the present time but that a substantial amount of developmental work remains to be done before the complete design could be accomplished. Moreover, we must recognize that satisfactory reprocessing methods for the fuel and blanket elements have not yet been developed. Thus, for the time being at least, we would have to depend upon Commission facilities for this essential part of a breeder reactor operation.

Another factor which we have had to consider is that of financing the construction of such a reactor. I believe we must admit that the first reactor of this type will not be economic because of the high development and construction costs and the very high fuel inventory. This fact, in turn, has an important impact on financing. We are talking about a very large sum of money, perhaps $50 million or more, and this estimate does not include allowances for such special materials required as the fuel and blanket inventory.

We are also talking about a type of installation which has never been undertaken before except on a small experimental scale. Even in the case of a conventional project much time and effort are required to obtain financing of this magnitude. Obviously, the problem is even greater where the anticipated result is subject to the outcome of developmental work. Conventional financing methods and techniques cannot be relied upon.

Nonetheless, the construction and operation of such a reactor may well provide the information and experience needed to make atomic energy a competitive source of energy. We simply cannot expect to

achieve the ultimate results without going through the experimental stage. My own feeling at this time is that we must look upon the problem as a developmental one on which money must be spent for the ultimate results rather than for any expectation of immediate and direct financial return.

I mention these points because I want to assure you that we are giving the most earnest thought to the proposal of the Commission in the light of the responsibility of industry to continue and increase its contributions in this field. I have said before, and I firmly believe, that if atomic energy is ever to achieve its expected peacetime role, industry must participate in the development and bring about the needed applications. In our American tradition, industry has always been expected to do this kind of job. It presents as much of a challenge as an opportunity.

If the activities of our own group are a measure, I think it is fair to say that industry, and especially the power industry, has responded promptly to the change in the law. This response will become more pronounced. Our immediate concern must be to evaluate our present plans on the basis of the recent policies announced by the Commission, and to determine to what extent our plans may best fit in with these policies. We must also study the Commission regulations when they are promulgated. We must find ways to overcome the handicaps arising out of the security considerations that are still present in the field of atomic energy.

We know there is considerable concern about the prices for special materials which have been set by the Commission. Since we have none of the background information used in establishing those prices, it is impossible for us to discuss them objectively. Almost any reactor which can be considered for the production of power would produce two salable products: heat and plutonium or U–233. For commercially economic reactors, the prices for special materials as established by the Commission provide no incentive.

It is our impression that these prices are intended to apply primarily to the developmental reactor program which the Commission has established. Certainly they will serve that purpose in developmental stages in which the Commission takes an active part.

The new law, as we see it, is an important link in the chain of events which will bring the full potentialities of atomic energy into our daily lives. We must be careful, however, not to overstate the potentialities or to understate the difficulties. We in our group believe that atomic energy can be developed to supplement our present sources of fossil fuels. We believe that this will be done. The hard work is well underway and the new law provides, to a large extent, an orderly and flexible superstructure under which the work can take place. This hard work requires continued cooperation between Government and industry, and I am confident that the Commission in its regulations will establish a pattern of cooperation that will enable the work to go forward.

Now may I call upon Mr. McQuillen to present our complete statement?

Chairman ANDERSON. I think we probably would want to ask some questions on this before we get to Mr. McQuillen, if you do not mind.

Mr. CISLER. Just as you say, Mr. Chairman.

Chairman ANDERSON. Is this statement in any way a variation from any previous testimony you have given before this committee?

Mr. CISLER. I believe it is consistent, sir.

Chairman ANDERSON. Did you have the feeling one time that you might be able to go ahead on your own without partnership with the Government, and without Government funds?

Mr. CISLER. I have always felt, Mr. Chairman, that industry could assume the major burden and that the financing of such a project as ours would be done by means of private funds. Our research and development work has proven to us that it is very important that we go through a developmental stage. We would hope to accomplish this development stage by a group interested in carrying it forward—a nonprofit membership group—which would carry out the actual design, construction, building, ownership, and operation of a developmental reactor of the size of 100,000 kilowatts or more. I believe that is consistent with our position in the past.

Chairman ANDERSON. I notice your reference here to the fact that $50 million is a very large sum of money. As you said, you are a little discouraged about its size. I heard some testimony in which you referred to $50 million, and you said you would have no trouble in getting it. Is that in any way brought about by the fact that the Atomic Energy Commission desires to have these joint ventures, rather than depending upon industry to go ahead by itself?

Mr. CISLER. Mr. Chairman, in our previous testimony we were discussing a competitive reactor, one that would meet the test of the competition with conventional fuels. This is a step in between.

Chairman ANDERSON. Then you do not believe the time is yet for competitive ventures?

Mr. CISLER. No. We are quite sure that such a developmental reactor would not be a competitive reactor and that consequently the financing of that would need to be done on a developmental basis, rather than on a basis whereby you are providing an alternative to doing it the conventional way. The earlier testimony was to reach the point where we had a competitive reactor. There it might require as much as $50 million, but, because it would be competitive, there would be no question about getting the necessary capital.

Senator PASTORE. Mr. Cisler, our distinguished chairman was on a television show last night, and he was asked a question that interested me very much. One of the reporters told him that we were visited by a scientist from Great Britain not too long ago, and he announced that they were ready to put in production a reactor that could produce electricity at 1 cent a kilowatt-hour. Am I right in that?

Chairman ANDERSON. Yes.

Senator PASTORE. Have you any observation to make on that? The tone of your presentation here is that we are quite a long way from it. That runs right into the face of that statement if it is true.

Mr. CISLER. I was in the TV audience last evening when the chairman spoke and I was very happy to be one, because I felt that it was very informative and certainly showed that not only are we cognizant of the developments occurring here, but also in other countries as well.

I think the figure of about 1 cent was used yesterday.

Senator PASTORE. One penny.

Chairman ANDERSON. That was the question.

Mr. CISLER. I presume that means 1 penny or 1 cent to us, which would mean about 10 mills. I would believe that it would be possible to produce power at that cost providing it was not necessary to install and make the investment in all of the processing equipment or the like, which would be required.

Senator PASTORE. Did you not get the impression from that question that they were much more advanced in this field than we are? That is the observation I would like to have you make, whether or not you are inclined to believe it, or disbelieve it. I do not know if it is a fact. It was just a question.

Mr. CISLER. I do not have any direct knowledge other than the reports which I have read in the press. Certainly those would show that they are moving forward in the generation of electric power. I have had occasion to talk with some of their people, and no doubt they are well along the way to the actual accomplishment of a reactor which will produce power. I am not in a position to say whether it would be for 1 cent more or less. But I believe it would be possible to produce power for that figure on the basis that other capital expenditures in the form of processing equipment, possible fuel preparation, would not be a part of the cost.

Senator PASTORE. May I ask you this question. Judging upon your experience, when do you think we will reach that point here in America?

Mr. CISLER. I think that we are reaching it very rapidly, Senator Pastore. I believe that certainly it will be accomplished in a period of less than 10 years, and perhaps several years less.

Senator PASTORE. You recall that when we had our previous hearings, one of the roadblocks in the enactment of the law, or in our discussion of it, was this question of patents.

Mr. CISLER. Yes.

Senator PASTORE. And that industry felt that if it was going to put its own money in it, it would like more freedom in the establishment of certain patent rights. You do not see that as a problem today, do you?

Mr. CISLER. Not in carrying forward our endeavor here, Senator Pastore. We do not believe that the patent matter is a problem as we are endeavoring to move forward through this developmental stage, as I said a few moments ago. We believe that the accomplishment of a developmental reactor should be on a nonprofit membership basis, so to speak, because we are in that developmental stage.

Senator PASTORE. Not to contradict anything, but merely to get a reiteration of it, if you so believe or some change in opinion, if that is the way you feel now, at the previous hearings I asked you a question with respect to certain changes in the law:

If these changes which you have suggested are made in the law, do you see private industry building a reactor in reasonable time?

Your answer was:

Yes, I do.

Then I went on to say:

Would you venture a guess on the number of years?

This is your answer:

We have said in this presentation that we would hope to have a preliminary research and development work accomplished by, say, the end of 1954, and that

we could then proceed with the detailed engineering design and later construction. As you know, even the conventional powerplant today requires 3 or 4 years for its construction. Certainly it would require a longer period of time to carry out the design and construction of a nuclear reactor. Going with that nuclear reactor would be the same type of generating equipment which is used in a conventional plant, and which requires about 3 years for its manufacture and erection. We would hope to accomplish this entire project in a period of 10 years or less.

Do you still feel so today?

Mr. CISLER. Yes, I do, even more so than at that time.

Chairman ANDERSON. We planned to start out with Mr. Hamilton, but I know Mr. Patterson has some questions.

Mr. PATTERSON. Yes, Mr. Chairman. Mr. Cisler, I notice in your statement on page 3, paragraph 3, that you refer to the 50 people who are working in your industry, and your specialists, both as physicists, chemists, engineering, and so forth. Do you feel that progress in atomic energy is being impeded because of a shortage of technically trained personnel?

Mr. CISLER. No, I do not believe that there is any serious impairment of progress. Like every other endeavor, you must seek the most competent people, and we have been fortunate in drawing upon the resources of personnel of both those coming directly from private industry, from our own organization, and from the facilities of the Commission. I think the whole question of technical personnel is a very important one to industry in general and to the country. It seems as though we never have enough engineers.

Representative PATTERSON. May I ask; do you feel that progress would be more rapid if there was available a more abundant supply of technically trained people?

Mr. CISLER. I think there would be some increase; yes, sir.

Representative PATTERSON. Do you think that progress in the industrial aspects of atomic energy is vital to the national interest?

Mr. CISLER. Indeed I do. I think it is very vital.

Representative PATTERSON. If technically trained manpower should be short and progress in the industrial side of atomic energy is still vital to the national interest, do you not think that the Federal Government should make preparations for the study of the scientific manpower problem and determine if some assistance cannot be rendered to the youth of our country in order to entice them into going in more for science and technical aspects of not only industry, but of our Armed Forces also?

Mr. CISLER. I think, Congressman, that the Federal Government is already doing a great deal. Undoubtedly there is more that could be done. I am thinking of some of the programs which the armed services have in connection with college and university education. Being an engineer myself I naturally feel that engineers are important. We find it so in connection with the atomic work as well as in other work. We find that in studying the background of experience of those working on this project, that the majority of them are engineers. They are engineers who have had experience in the mechanical engineering field.

Representative PATTERSON. I have a program in mind that would be similar to the present program set up for the Naval Academy, West Point, Coast Guard Academy, and the Air Force, where the youth of our country is really subsidized for a period of so many years, and

then owe an obligation to our country. However, this program I have in mind also would deal with both the male and female youth of the country.

Mr. CISLER. I believe we can never have too many educated people and essentially people in the technical field. May I say that already industry is endeavoring to step up its own educational activities. For example, in our own company we have had a class taught by the assistant director of the Phoenix project of the University of Michigan. That class has been made up of about 65 of our own empolyees.

Representative PATTERSON. Those are people who are already trained as engineers and scientists?

Mr. CISLER. Yes.

Representative PATTERSON. I am talking about our youngsters who just graduated from high school who will start right in as their life's work.

Mr. CISLER. Wherever you can help education, I am a believer in doing it. I think it is one of the great hopes of the future to have a large body of educated people.

Representative PATTERSON. I introduced a bill today. I thought perhaps you could give me some real professional advice along those lines.

Mr. CISLER. I happen to be very interested in education and certainly I believe it is very commendable.

Chairman ANDERSON. Mr. Allardice has a couple of questions.

Mr. ALLARDICE. Mr. Cisler, your firm is a member of a study team under the Commission study agreement?

Mr. CISLER. Yes.

Mr. ALLARDICE. Does the contract or study agreement require you to consult with the Commission on any public statements you make on the subject?

Mr. CISLER. I do not know that there is any exact provision in there. We have always endeavored to keep the Commission informed on any public statements which are made that would in any way be taking some position that was not already known.

Chairman ANDERSON. Does not your agreement provide for that?

Mr. CISLER. Mr. McQuillen, could you say specifically on that point?

Mr. MCQUILLEN. Mr. Chairman, I am sorry I do not recall any exact provision of the contract to that effect. But I do know that the working arrangements have been such that any statement of a public sort which is conceived as having broad interests or of significance to the Commission has been taken up in advance. That is the way in which this study group has been operating.

Mr. ALLARDICE. I think the Commission testified to us that the power-study agreements require that the firms consult with the Commission before they made any public statements. The reason I asked was to see whether you had consulted with the Commission on this particular statement.

Mr. CISLER. Mr. Upton is here. He is our Washington representative.

Chairman ANDERSON. As far as your statement is concerned, did you consult with the Atomic Energy Commission?

Mr. CISLER. No, I did not personally myself consult with them.

Representative COLE. May I inquire, Mr. Chairman, assuming that there is such a provision with the contract you have with the Com-

mission in which you are obligated to submit public statements to the Commission prior to their publication, has such a clause caused any difficulties?

Mr. CISLER. No, I do not believe so, Mr. Congressman. Our relationships have been very satisfactory with the Commission. We have found them to be very cooperative in all of our work. I have only the most kind thoughts and feelings regarding our relationships with the Commission. It has been very pleasant, and we believe a very progressive and substantial relationship.

Mr. ALLARDICE. The next subject is that from your testimony I take it you are familiar in some detail with the Commission's two recent actions, the one soliciting bids for Commission assistance in power demonstration reactor programs, and the other establishing pricing. What in your opinion are the effects of these two actions on industrial participation?

Mr. CISLER. I believe that the announcement of January 10 will bring forth proposals from industry to the Commission for the building of reactors. I have always felt that when ownership of the facilities could be had by industry that would be a great stimulant to advancing forward in this field. So I believe that proposals will come forward and probably those would be submitted within the time. I have that feeling that proposals will be submitted.

As we have endeavored to say in this testimony, the prices are not prices that would provide a great incentive for the building of reactors, but we must realize that at this stage these reactors cannot be competitive with conventional means of producing power. They are developmental reactors, and we are going through the developmental period of atomic energy for commercial, industrial, and civilian use.

Mr. ALLARDICE. Do you see any effect of these two Commission actions that might tend to postpone or defer industry from going it alone and completely paying for the project or plant or reactor itself?

Mr. CISLER. No, I do not, because I feel that these must be done on a developmental basis, and cannot be considered as being competitive and economic in the full sense.

Representative COLE. Mr. Chairman, if I may interject, how can you take the position that the prices as proposed by the Commission do not provide an incentive, or as you may have said, a sufficient incentive, and still say that the action of it has not deterred or discouraged private capital from moving in. It would seem to me the absence of an incentive is the reason why you may anticipate that interested people would not move in.

Mr. CISLER. Of course, if prices were high, it would tend to make up for a difference that might exist between an economic and noneconomic project. That just naturally follows:

I feel that in this particular type of reactor which is a breeder reactor, never before accomplished in the field that is proposed, naturally the difference in the cost of carrying forward such a development is influenced by the value of the upgrading of the materials which has occurred. I do not believe that for this type of reactor development that would prevent such a project from going forward. If the prices were higher, it would naturally reduce the difference between the cost of actual construction and operation of this type reactor as compared to getting the same energy in the form of electric

power from a conventional project. I think that is all a part of the developmental expense involved.

Mr. ALLARDICE. You may not care to answer this question, but do you intend to bid on one of them under the April 1 deadline?

Mr. CISLER. We—I say we, not speaking for the entire Atomic Power Development Associates—hope that there are those who would feel that they could move forward into the actual accomplishment of a project. We so signified our intention to do so back in July, and we are still minded to do so. Whether that is possible or not is something I am not in a position to definitely say at this time. But I can tell you that we have been trying very hard.

Mr. ALLARDICE. When General Nichols and the Commission representatives were before the committee, they were interrogated quite lengthily and pointedly on this problem of, does their action deter industry from going it alone. Their principal answer was that in discussions with industrial people they came to the conclusion that no industry would be ready at this time to jump in and do it alone. I believe General Nichols said you were one of the persons with whom he talked.

Do you recall the circumstances, and if so, could you enlighten us more on your feeling?

Mr. CISLER. Yes, that occurred, I think, about the middle of December. We had anticipated an earlier meeting, but because of the illness of General Nichols, it was postponed for a short period. We discussed our breeder project with General Nichols. We had been endeavoring to develop a proposal, say, by the 1st of December on the basis of the information which we had available earlier in the year, and which brought about our letter in July to the Commission. It certainly is true that at the meeting with General Nichols we discussed how we would go about carrying out such a developmental reactor, the value of the products, how you would separate the conventional part of the plant from the reactor part of the plant, and how you might go about developing a proposal for such a project.

Mr. ALLARDICE. Could I interject, at that time were you thinking of a proposal for Commission support, or was this a project which you would support yourself?

Mr. CISLER. This was a project that we would support ourselves. We would provide the necessary funds for all of the actual building of the facilities just as in the case of the research and development work which was carried on last year in the Commission's laboratories. There would be a continuation of that kind of research and development work. But the actual construction of the reactor would be carried on by private sources.

Mr. ALLARDICE. Why did you use the expression "proposal"? What you are talking about, it seems to me, is a license to do this activity.

Mr. CISLER. I think that is true, Mr. Allardice, but having been in the power industry all my life, I always visualize the building of a facility if you are going to produce something. So in making a proposal as a part of that proposal would certainly be a license request. I visualize the physical facilities which have to be constructed; in order to do it, one would have to have a license.

Mr. ALLARDICE. This proposal did not entail asking the Government for some financial or cooperative assistance other than perhaps research that might be done at another laboratory for you?

Mr. CISLER. Yes.

Mr. ALLARDICE. It would be totally your activity.

Mr. CISLER. It would be totally our activity. The ownership of the facilities would be totally ours. We do take Government-owned materials which only the Government could own, and would use those materials, would upgrade them, so to speak, and that would be of value to the Government.

Representative DURHAM. Did you request a license to do that?

Mr. CISLER. That would be a part of the proposal.

Representative DURHAM. Did you request a license?

Mr. CISLER. No, that request would come about when the proposal would be made. In other words, we would submit a project proposal and incorporated as a part of that would be a license request.

Representative DURHAM. The reason I asked that question is because the Commission has seemed to adopt two ways for this. One is by research and one by a licensing method. One is by proposal and agreements which is nothing more than research, which you are talking about.

Having been on this reactor committee for some 10 or 12 years—I am sure all the committee was encouraged when we took the first power off the reactor in 1951 in December, 3 years lated we are in here being requested by the Commission for another $120 million for more research on reactors.

I was one of those that felt when we adopted this act we would get it over into the field of private enterprise and you people would carry on the research to a certain extent, we would buy back the material from you, and we would get out of the socialized business. Three years is quite a long time for a development to take place.

Now we are still requesting the Government to spend $120 million more this year. What encouragement do I get out of that kind of process? You are sitting on the board of directors and I am sitting here, too.

Mr. CISLER. Our group since 1951—early in 1951—has spent nearly $4 million in carrying forward the studies in research and development work.

Representative DURHAM. That is true. I am encouraged a little bit by what you people are doing, but it looks as though we have reached the point where somebody would ask for a license to build a reactor that costs $100 million. That is if you have faith in it. If you haven't faith in it, no. Are we afraid of it, or are we just fooling ourselves? It reminds me of what Mr. Keller said one time when we called him down from Chrysler, when we were getting nowhere in the development of these missiles. He said you can research and you will never fill up the barn. You will never have anything in the barrel to sell. So it is getting to where this thing is still research, research, research. I believe in it, but after a while I want some results.

Mr. CISLER. May I say, Congressman Durham, that we plan to move forward on two fronts? One is the long-range research and development, which is the Atomic Power Development Associates. The money we have expended in the past and a large part of the $3,815,000 for this year goes into that long-range development. That has for its purpose the accomplishment of competitive power from a breeder reactor.

A proposal, which I would hope can be submitted, would be made by another group, some of which might come from the Atomic Power Development Associates, and others who would wish to join the actual building, construction, operation, and ownership of a large breeder reactor, much larger than anything that has been built.

As you know, this effort in the breeder reactor field has been a pioneering one. It is one which in my own opinion holds the greatest hope for economic success.

So we would be hopeful of carrying forward on two fronts. One is the long range research and development by a nonprofit membership organization, to design, build, own and operate a larger breeder reactor.

Representative DURHAM. As an excellent businessman, what length of time do you foresee for such a thing?

Mr. CISLER. I would believe that could be accomplished in less than 5 years. We have endeavored to say in this testimony that we have reached the point where we believe that a reactor of that size can be built. There is certain research and development work which is a part of the design of such a project. But that has been our endeavor since the Commission approached this earlier last year.

So over the past 7 or 8 months we have been doing our best to develop such a proposal.

Chairman ANDERSON. I want to go back to your 1953 testimony. This is at page 150 of our hearings at that time. There was, we thought, very fine testimony. You said:

> If our studies indicate that a high-temperature breeder reactor is commercially competitive, considering both heat and energy products, we are hopeful it will, we propose to design, test, and operate such a reactor using private investment funds and without Government subsidy, without any guaranties of any kind. Although our program must justify itself on this basis, we believe if breeder reactors are a success in this country, can eventually be made independent of overseas sources of raw uranium. In addition, the military would have a further source of high-grade materials for defense purposes.

That is an optimistic statement, and we thought a very encouraging one. Do you still subscribe to that?

Mr. CISLER. Yes, I do, Mr. Chairman.

Chairman ANDERSON. Do I understand that when you discussed this with Mr. Nichols in December, you still subscribed to this sort of an idea?

Mr. CISLER. May I explain, Mr. Chairman, that that is for a commercially competitive reactor. I do not believe that such a reactor exists today or could be built today, except for certain isolated areas where the cost of fuel may be exceptionally high. I think it specifically says there "commercially competitive."

Chairman ANDERSON. Yes, it does.

Mr. CISLER. We believe that we must go through this developmental reactor on a large scale, and it will be the reactors which follow that one which will be the ones that will be competitive. Our specification design reactor, the one that we believe would have the greatest change of economic accomplishment is still a larger one than this 100,000 kilowatts that I am speaking of now. It is one of 150,000 kilowatts, because we believe that to get economic power, it must in the long range be on a large-scale basis. That is even true with conventional plants.

So I believe that the testimony that was given before is still correct. We have learned a great deal since then. I think we have kind of compounded the interest on the research and development work which has been going forward. What we believed would be possible a year ago is closer to us than just a year.

Chairman ANDERSON. That is fine. Taking that statement, closer to us than we thought then, let me read you what you had to say then with reference to this. The question was:

Are you prepared to say that you will build a reactor if the law is amended?

You were urging that the law be amended so you might have a chance, as Mr. Cole has pointed out, to go ahead to do these things, and I certainly hope you will have a chance. Your answer was:

Unfortunately, we can only say that we cannot build a reactor if the law is not amended. The technical progress looks most promising. It is felt that unless legislation is forthcoming very soon, the technical progress will be stopped. Awaiting legislation is allowing further progress.

The question was:

How far in the future is a real reactor a possibility?

We can only say there are orderly steps which must be followed. First, the solution of certain technical problems which are seemingly solvable, the proposed legislation, the proper financing, and then location and construction. The last of these steps should be in motion within the next 18 months.

That is about now. If they go ahead with this sort of interim period for further research and development, and that goes on for 3 or 4 more years, do you think it may get away from us and some other country will have it in the meantime?

Mr. CISLER. I would hope not, Mr. Chairman.

Chairman ANDERSON. Do you believe you can hold it back 3 or 4 years while we research and develop?

Mr. CISLER. No. I think the research and development Mr. Chairman, is a part of carrying this forward.

Chairman ANDERSON. Can it be going on a little too long sometimes when we ought to be trying it?

Mr. CISLER. Yes, certainly it could go on too long. It is because we feel that the time has come, so to speak, to go forward with a large developmental reactor that we are giving the most serious and careful consideration. We have, for the past 7 or 8 months, devoted a tremendous amount of effort to completing sufficient of the technical details to enable us to extend known data far beyond what that data covered in actual size of facility and to predict the design and operation of a far larger plant at an earlier date than you might normally do. In other words, we have accelerated our program.

This matter of the expenditure of $2 million for the testing of a loop, $700,000 of which would be spent this year, was not contemplated a year ago. We already have decided to do it, and have provided the money. That work is getting under way. So there has been a stepping up of the research and development program as fast as we could possibly justify it.

Chairman ANDERSON. I know Mr. Durham has some questions, but I noticed a moment ago when they asked you about bidding on April 1 you were not too sure you were going to bid next April, whereas when we heard your testimony something over a year and a half ago it sounded as if you were almost ready to start building. We wondered if you have gone backward a little bit during the intervening period.

Mr. CISLER. I firmly believe we have gone forward and gone along quite a long way.

Representative DURHAM. I want to elaborate a little bit on the point you raised, Mr. Chairman, in regard to the boldness of this matter. You remember that we went to another type of reactor. The point is that if England is going to jump with a reactor and begin taking 100,000 kilowatt-hours off it is not going to make us look so good. We have a competitive spirit in this thing, as well as some other things, that are important. That is the point, as I see it, in this whole thing. When you look at that old reactor in the Chicago Stadium, and look what happened, I think somebody has an obligation if they want to take this thing, since they asked and requested it. I think the committee has tried to do everything we possibly could. The question, of course, as to whether or not these types of agreements you have to consummate now with the Commission to get into this thing and get going will tie you up in another research program and development program for another period of time.

When we took that power off the breeder-type reactor, we nursed it along like a baby and gave Mr. Zinn everything he wanted. We were all pretty proud when that was consummated. It was, of course, proof that it could be done.

If we have to mess around here for another period of years, somebody else might beat us to it. It is just an observation.

Mr. CISLER. I think your comments, Congressman Durham, certainly show the importance of going forward. May I tell you that the EBR, which is the one you are referring to, has been a very important basis for our being able to even talk about a reactor of this size. Think of stepping up from a relatively small demonstration to one of 100,000 kilowatts. That is a very big step, indeed. If you compare the time required in the development of conventional means of generation, that has required many, many years from the first units there in Pearl Street in New York City in 1882 to the present day, a period of 75 years.

This step from an EBR to one of 100,000 kilowatts in that period of time is a far greater step than has ever occurred in the generation of power. Certainly in the heat-release equipment. I would say it would be an outstanding accomplishment to do so. While it is developmental, yes, this whole utilization of atomic energy for industrial and peaceful purposes is in the developmental stage. In using the term "developmental" we must realize that what is involved physically—we call it developmental, yes—the demonstration of size is very great indeed.

Representative DURHAM. I realize you have a tremendous problem.

Mr. CISLER. Of course, there are other reactors being built. For example, the PWR, which is a very large reactor, that is a demonstration of the ability of this country to move forward in atomic power development.

Representative DURHAM. That will be obsolescent when we finish it. I am afraid so.

Mr. CISLER. Isn't it true that most all of these are really obsolescent because the technology is improving? So therefore it is developmental. We have not lost sight of our objective, which is the accomplishment of economic power by use of atomic energy, and atomic fuels to supplement existing fossil fuels.

If we accomplish that, then we will make real this great resource of atomic fuels. Unless we accomplish that, we do not make it real.

Representative DURHAM. Let me ask you this question, just as a supposition, more or less. If we could today build 50 or 75 or 100 of them—if all the producing companies of kilowatt-hours in this country could build one—do you think it would drastically affect the economy immediately? Is there such a thing in the minds of industry and private enterprise in this country, that it is too severe to take this thing on too quickly?

Mr. CISLER. I would believe, Congressman Durham, that we would not want to build that many of the same type.

Representative DURHAM. I said it was a supposition, of course.

Mr. CISLER. We are building a number of different types of reactors, and they will each give experience and very important data that will be helpful in the future. I think to have a large number of reactors of the same type would not be useful. I think it would in a sense be wasteful to build a large number of exactly the same type when you are going through a developmental stage.

Representatives DURHAM. I can agree with you on that, with no more knowledge than we have at the present time. I asked the question on that basis that there was some feeling on how drastically it would affect the economy, coal and all the rest of the fuels.

Mr. CISLER. I do not believe there will be any effect on the conventional fuels. Last May at the invitation of the American Mining Congress, I presented a paper to them, showing that because of the increased requirements for electric power in this country, that over the period of the next 10 years there would be a substantial increase in the consumption of solid fuels for electric power generation. In fact, it would practically double.

I think it is well, too, based upon a study that was made last year, that over the next 25 years the increased requirements for electric power in the United States mean that about 90 percent of the additional requirements over the next 25 years must come from fuel sources. We certainly can expect that atomic fuels will take their rightful competitive place.

Representative DURHAM. You would look upon it more or less as supplemental?

Mr. CISLER. Supplemental, and not to supplant. I believe existing installations will serve their economic life. Atomic fuels will come in competitively, and they will come in in those areas where fuel costs are higher first.

Chairman ANDERSON. Mr. Allardice.

Mr. ALLARDICE. Referring back to this December conversation with General Nichols, from what you have said here, I would infer that you were encouraged and interested in pushing ahead with industry's own money. Is that correct?

Mr. CISLER. Yes, that is true. I have always felt that we should move forward.

Mr. ALLARDICE. Under a licensing system?

Mr. CISLER. Yes.

Mr. ALLARDICE. Then I wonder if you could give any reason that the Commission representatives might have gotten the impression that you were not ready, because this is what they indicated. This is

the reason they said they should go ahead and solicit bids for partial Government subsidy of these programs under the April 1 proposal.

Mr. CISLER. I don't quite understand the "partial."

Mr. ALLARDICE. One of the reasons the Commission says that it should go ahead with this partially subsidized operation under the April 1 proposal system is that in conversations with industry—and your name was mentioned specifically—they were led to believe that industry was not prepared to put its own money in the program, that is, exclusively their own money without Government aid.

Here you tell us, quite the contrary, last December you were optimistic about doing that and you still are. I am trying to find out what might have been the cause of this Commission's lack of faith that caused them to push ahead on the April 1 proposals.

Mr. CISLER. We had expected that it would be possible by the 1st of December to submit a proposal, and that was based on the conversations which were held last year during the spring and summer. I think conditions changed during that period of time, and in our discussions in December, we realized that industry, now that it had the rightful right to own the facilities, in the actual construction of those facilities it should be with private funds.

As I understood it, the Government was prepared to assist in research work and the like. Of course, that would be very helpful.

Mr. ALLARDICE. That is authorized by the law.

Mr. CISLER. Yes. This is very costly business to do. When I tell you just literally the testing of a loop is a $2 million item, and that is to be done entirely at our expense, as we said during 1954, the work carried on by the Commission as a part of its regular program was very helpful to us. Certainly we could not have reached the point that we have without the benefit of that.

My understanding was that the Commission would help in actual research work but not in any actual building of a facility where that facility was going to be owned privately. That is understandable.

Chairman ANDERSON. I am afraid we will have to hurry along here, or else we will not get through with all these witnesses.

Mr. ALLARDICE. That is all I have.

Chairman ANDERSON. Mr Hamilton.

Mr. HAMILTON. I would like to reinforce your statement that you would not necessarily expect to have any Government assistance in your project by quoting again from a memo you submitted in 1953 to the committee. The question was asked:

To what extent do you expect Government participation in your project?

You replied:

We do not expect any financial appropriation to this project. There is work of great importance being directed by the outstanding scientists of the AEC laboratories which is of interest to all projects. To duplicate these efforts would be a tremendous loss in time and a great waste in our national resources. We could duplicate this work if we were allowed to hire these minds and carry out the research, but it is so much more practical to put questions to the laboratories and let them be solved in the regular course of work.

In your statement you noted that there had been work done for the Detroit group in the past year by Argonne at our expense. Could you tell us how much has been paid to the Commission by your group for research done for you in Government facilities?

Mr. CISLER. There has not been any to my knowledge, Mr. Hamilton. The work which has been done is work which applied to other programs as well.

We did not last year complete all of the experiments that we had expected to do. That work is being carried over into 1955. But there has been no payment to the Government because I do not believe that there has been any extensive work just peculiar to this project which has been done. I testified earlier that we would expect to pay for such work and we would still expect to do so.

Mr. HAMILTON. In other words, there has been no work done in AEC laboratories specifically for you so far.

Mr. CISLER. I wouldn't say exactly that, Mr. Hamilton, because we confer with those people in the national laboratories, and we invite them to our engineering conferences. Naturally we are gaining by that all of the time. This has been a cooperative effort in that sense. But we still are prepared to pay for particular work in carrying on the long-range research and development work. If in accelerating this program, such as a large breeder reactor, whatever assistance the Government feels they can give in the way of research and development would of course be most helpful. That was the thing that we had discussed earlier in connection with Mr. Allardice's question.

Mr. HAMILTON. You are still continuing now in your study contract with the Commission; is that right?

Mr. CISLER. Our existing contract has been extended to the 31st of March. In the meantime we expect within a matter of a few weeks to incorporate the Atomic Power Development Associates into a nonprofit membership corporation, and that that nonprofit membership corporation will make the contract with the Commission to carry on after the 31st of March.

Mr. HAMILTON. Why do you plan to carry on under a contract provision after you have incorporated, rather than seek a 104 (c) license, which would allow you to have research and development under license for things other than the actual full-scale reactors to demonstrate their practical value?

Mr. CISLER. I don't know that there is any reason why we should not apply, Mr. Hamilton. We have wanted to put this on a still firmer basis, and that is one of the purposes of going into a nonprofit membership corporation, because we think it gives it more soundness and more firmness. We have been operating under a memorandum of agreement among the member companies, and that memorandum agreement has been a part of the contract with the Commission. Now we are taking another step, and we believe a very distinct step. When we approved this on the 31st of January, we thought this was really a pioneering step in atomic energy development.

Mr. HAMILTON. If the Commission has established licensing procedures by the 31st of March, would you have any inclination to go the licensing route to carry forward your activities rather than go the contract route?

Mr. CISLER. I think I would like to ask Mr. McQuillen from a legal standpoint if he would answer that. Whatever would be the way that would advance progress most rapidly is the way that I would personally favor.

Mr. McQUILLEN. I anticipate that the form of the legal relationship between the new corporation and the Commission would be one deemed mutually by the Commission and its staff and the people acting for this corporation to be best adapted for the work actually contemplated during the year for which the agreement or the license would be apt to run.

Mr. HAMILTON. Which, an agreement or a license?

Mr. McQUILLEN. That would depend, I think, on a thorough examination with the staff as to which was the better vehicle. If, as is now contemplated, the work during the coming 12 months after March will not on the part of this corporation reach the stage of handling of nuclear material itself, it may still be more appropriate to go purely the contract route under section 31.

On the other hand, we have no fixed purpose or desire to go that way rather than under 104 (c). From what I know so far, I think 104 (b) is a step beyond the next 12 months activity. Whether it will be just 31 or 104 (c), we have no preconceived notion about and expect to work that out in the process of working out with the Commission the actual form of the document or documents under which the work will proceed.

Mr. HAMILTON. Would you estimate that the detailed planning for the activities of this nonprofit corporation are in any way being delayed or made more complicated by the failure of the Commission to issue license forms and procedures and rules and regulations so far?

Mr. McQUILLEN. No, sir.

Mr. HAMILTON. The last time that you were before the committee testifying it was the Dow-Detroit Edison group. I wonder if you could tell us what happened to the Dow Chemical Co. in this group? It was our understanding that when the Commission first sponsored study groups, they urged that utility companies and chemical companies tie together, because of an inherent interest that chemical companies had in the reactor business. Dow has now apparently withdrawn from the group and has no activity other than a paper study on the liquid fuel reactor.

Mr. CISLER. We communicated with the Commission at the time, both on the part of Dow and ourselves. Dow believed that we were reaching the point where their interest was more specific in certain areas of the development and that it was taking on more and more of a power development project. While chemistry was very important, and particularly the reprocessing of the fuel elements and the like, it seemed rather probable that for the immediate future the facilities of the Commission would be used for that purpose.

As you know, I am sure, we have really stepped up this program. We have stepped up the expenditures of money in the program. Our interests are certainly focused upon the development of economic electric power, realizing full well that there are other products and by-products. The real accomplishment is to get economic power. Consequently, that was not the kind of business that Dow is primarily interested in, and they decided that they would devote their efforts to a more restricted area.

Mr. HAMILTON. That sounds very reasonable and very logical. But in 1953, when you appeared before the committee in June, you had

an exchange with Mr. Holifield in which the following occurred. You were answering Mr. Holifield, and you said:

> Might I just say, Mr. Holifield, that this particular project involves a complete system. It is more than just the reactor. It includes the processing of the reactor products and byproducts. It starts with the source material and carries right through to the end point.
>
> Mr. HOLIFIELD. Do you mean you are planning to do all of that?
>
> Mr. CISLER. We are planning to do all of that as part of this project. Our plans do not stop with the reactor.

Have you abandoned that now?

Mr. CISLER. No; that is a part of the research and development of this nonprofit membership corporation which has as its scope not only the reactor, but the processing and reprocessing of the materials. We are endeavoring to develop a complete system of use of atomic fuels, because I believe that is a part of the commercial aspect of this. Until we accomplish a completely successful physical and integrated economic and commercial system, then we don't reach the full utilization of the potential that the atomic fuels hold. So our research and development effort, which is the one that the 33 members are now pursuing, and have appropriated $3,815,000 for this year, is to accomplish that very same objective.

The other, in the matter of a specific proposal for a developmental reactor, of 100,000 kilowatts, is separate and apart from that, taking full benefit of all the background of experience that we have gained over these past 4 years, and as we may gain further from this research and development, and literally putting that into carrying forward and actually building of a facility on the part of those who wish to join together to do so.

So we have two efforts, one the long-range research and development, and the other the accomplishment of a specific large-size breeder reactor.

Mr. HAMILTON. Could we go back for just a moment to your exchange with Mr. Allardice. I got the impression from that that if the Commission were to this afternoon cancel its power-demonstration program as a program, that the activities of your group would go forward, and that there would shortly be an application for a license under 104 (c) or (b) some arrangement to go ahead with the demonstration reactor fully privately financed simply drawing on the information which the Commission laboratories are drawing in the normal course of events. Is this correct?

Mr. CISLER. I think the Commission's proposals or invitations of January 10 provided for the value to upgraded material.

Mr. HAMILTON. Yes, but that would still be available to any licensee under 104 (b).

Mr. CISLER. Yes.

Mr. HAMILTON. All the advantages which they put forward in that power-demonstration program are things provided for by law which the Commission has blanket authority to extend to any 104 (b) licensee.

Mr. CISLER. Yes.

Mr. HAMILTON. They are not unique and there is no implication in the law that they can grant them only to specific parties.

Mr. CISLER. Let me get your question clear, Mr. Hamilton, because I want to be sure that I give you an answer that is consistent with your question.

Do you mean if the Commission would cease carrying on research?

Mr. HAMILTON. No, sir. If the Commission were to announce that there is no April 1 deadline, there is no specific program to select a certain number of applicants for projects to be supported by the Government, that the Commission intends to adhere to the law and grant 104 (b) licenses, and extend the benefits available under the law to those people who apply for a 104 (b) license, would you assume that was equally sufficient incentive as that now offered by their program, and proceed anyhow?

Mr. CISLER. No, I would not feel that it was of equal incentive. I think the very fact that the Commission desires to move forward as rapidly is an incentive. I believe that setting a date for it is a further incentive, because everyone then endeavors to work to a date.

Mr. HAMILTON. Didn't this April 1 announcement actually delay submission by you? You said you had hoped originally to have a proposal in by December 1, and apparently something happened through private conversation with Mr. Nichols and others, and then there was a public announcement on January 10 with the result that instead of having submitted something in the normal course of events earlier, you are now 4 or 5 months further behind.

Mr. CISLER. I don't believe that there would be any actual delay because our entire study has hinged upon getting a starting date of about the 1st of July. The research and development work necessary is really the controlling factor there. Regardless of whether a proposal had been submitted earlier or in this period of time prior to April 1, I do not believe that there would be a delay in the ultimate completion of the project.

Mr. HAMILTON. On page 1 of your statement you state that all the knowledge which you expect to develop, however the project goes forward, will be available to the Commission without cost. Do you also expect that all such information should be available to anyone in the atomic power industry, including your competitors?

Mr. CISLER. Yes.

Mr. HAMILTON. Regardless of whether it is done with your own money or Government money?

Mr. CISLER. Yes, during this developmental stage.

Representative COLE. Mr. Chairman, may I interject for a moment? Reference has been made to the fact that the Dow Chemical Co. has discontinued its participation in your study group. Dow Chemical was one of the originators of your study group, was it not?

Mr. CISLER. Yes.

Representative COLE. Are you prepared to state to what extent, if any, the present provisions of the atomic energy law pertaining to patents caused Dow Chemical Co. to discontinue its participation?

Mr. CISLER. I have no knowledge, Mr. Congressman. That was a decision that they made on their own. As you know the power industry has traditionally not been an industry concerned with patents. I am sure we have not been held up in any way because of any matter of patents. We have moved forward.

Representative COLE. Speaking for the utility aspects.

Mr. CISLER. I am speaking from all those who are a part of this group.

Representative COLE. Do you have any reason to believe that the reason Dow Chemical withdrew its participation was because of the patent provisions?

Mr. CISLER. No, I do not have any reason to believe that that was a controlling factor with them.

Representative COLE. I did not ask you whether it was a controlling factor or not. I simply asked if you had any reason to believe that was a factor.

Mr. CISLER. I know from their own testimony here before this committee that they emphasized the matter of patents here. I think that was covered a year ago, the importance of the normal patent provisions.

Representative COLE. That was their platform or position. They advocated the opportunity for normal patents in this field.

Mr. CISLER. Yes.

Representative COLE. And the law does not give that to them.

Mr. CISLER. No, the law does not give it.

Representative COLE. And they have withdrawn.

Mr. CISLER. Yes.

Representative COLE. So each of us may draw whatever conclusions he may want to.

Mr. CISLER. I believe so, yes.

Mr. HAMILTON. Mr. Cole, in order to help draw the conclusion, the chairman invited Mr. Gillespie and Mr. Doan, who appeared here with Mr. Cisler last year, to testify in these hearings, and we have received a reply from them saying that they feel they have nothing further to add at this time.

Representative HOLIFIELD. In order to help draw more conclusions, as long as we are drawing conclusions, this patent business, as it is now in the act, is so full of holes that anybody who wants to get a patent can get one in case they are anxious to get one. The patent section, as far as I can see it, is in no way prohibitive, as long as we are drawing conclusions on these matters.

Chairman ANDERSON. Are there any further questions?

Mr. HAMILTON. On page 5 of your testimony, you referred to an allowance for fuel inventory. I wonder if you could explain in view of the fact that the law obviates the necessity for any capital investment by a licensee in the materials inventory, what this reference may be.

Mr. CISLER. That reference has to do with what may be a very large inventory of fuel, an inventory of the material owned by the Government which the license would permit you to use.

Mr. HAMILTON. There would be no charge to you for having possession of that, other than a small percentage charge.

Mr. CISLER. A percentage interest charge on the inventory of the money represented there. Certainly, if the project had to carry that heavy inventory of Government-owned material, it would add very substantially to the amount of capital required. Of course, you could not own it anyway. So it was assumed that the inventory would be made available by the Government. It would be upgraded, so to speak, and that would have a value to the Commission.

Mr. HAMILTON. I wonder if you could explain how Detroit Edison and the other companies associated with it are financing the development investment which you are now making and which you plan to

make in the future. Is this included in the rate base paid by the consumers of electricity on these systems, or is it taken out of the capital surplus or net profit, or where does it come from?

Mr. CISLER. In our case of our own company, it is charged to operating expense.

Mr. HAMILTON. This is a research and development operating expense allowed by the Utility Commission?

Mr. CISLER. Yes. We have a communication to that effect telling us where to charge it by the Michigan Public Service Commission.

Mr. HAMILTON. Have they placed any limit on such an amount that you can spend?

Mr. CISLER. No.

Senator PASTORE. May I ask this question?

Mr. CISLER. Yes. Last year they specifically stated the amount. Last year we had budgeted a half-million dollars of company funds. This year we have budgeted up to three-quarters of a million dollars of company funds.

Senator PASTORE. Mr. Cisler, I get this definite impression—I may be wrong, and maybe you will correct me—having read your statement today and having heard you here, that you are a little more cautious about the feasibility of this being done exclusively with money of private industry now than you were before the law was passed. Am I right or wrong in that impression?

Mr. CISLER. I think before the law was passed we expected that such a project could operate very much the same as a normal project and meeting, of course, all of the security provisions. Not only could there by ownership of the facilities, but also ownership of the materials. Our statement before, and still would be a statement, that on a commercially competitive basis, such a project would be self-sustaining. Therefore, the capital required to do it could be justified. That is the purpose of this long-range development.

Senator PASTORE. I am not trying to be critical.

Mr. CISLER. I understand.

Senator PASTORE. I am trying to sense your action and reaction, and attitude today, as contrasted to your testimony on a previous occasion. You have a perfect right to revise your attitude. You are a little more cautious about the free participation on the part of private industry doing this exclusively on its own as against how you felt when you testified the last time.

Mr. CISLER. Senator Pastore, I have the feeling that because of this group effort that there will come forward one or more proposals on the part of industry that might not have been possible otherwise. This background of 4 years of know-how that we have gained certainly is making individual members of the group and groups of individual members far more knowledgeable than they would have been otherwise. We have endeavored to make individual associates and groups of associates strong so that the time would some when individuals or groups could move forward into the actual construction of facilities. We have felt that in carrying forward this project we were spreading knowledge and by mobilizing resources of know-how and capital to do the research work, that we were going to advance forward atomic energy.

Senator PASTORE. Let me ask you this question, then, If the Government decided to withhold further money with reference to this

research and development, do you feel that that would retard the program appreciably? In other words, if we took the attitude that private industry, if it cared to, should do it alone, exclusively, would it injure this program appreciably?

Mr. CISLER. I believe the Government must be in a position to carry forward research and development work in the national laboratories which will be useful not only to our own group but to others as well. I don't believe that this can all be accomplished without a very close cooperation and partnership, so to speak, between Government and industry. This is a very great undertaking indeed. I have always believed in Government and industry cooperation.

Senator PASTORE. And of necessity, it is your opinion that the Government must remain in this program at this stage?

Mr. CISLER. I believe that the Government must carry on research and development work.

Senator PASTORE. And that is all that you are in now, research and development work.

Mr. CISLER. That is all we are actually in, work which is going on in the national laboratories and very important to the work that is going on in private facilities for which we are paying.

Mr. HAMILTON. I might try to pin down a little bit more when this change of attitude that Senator Pastore has been commenting on may have occurred. I wonder if you could speak a little bit in an unclassified way about the pricing schedule? There seems to be some possibility that you feel you were quite enthusiastic in December, that between then and now, 2 months later, you are substantially less optimistic about being able to carry the whole load. This seems to suggest that possibly the pricing schedule has been set in such a way as to make you feel that this is not a sufficient source of additional revenue to you to permit you to carry the project forward on an economic basis.

Would you comment on that?

Mr. CISLER. Early last year we anticipated that the value of the materials would be higher than was later decided upon. That naturally affected the extent to which you had to use funds to make up for the difference.

Mr. HAMILTON. Was the price that you expected to be set in any way suggested by anything the Commission had said previously, or was this an independently arrived at observation on your part?

Mr. CISLER. We had expected from earlier conversations that the value of the materials would be higher.

Mr. HAMILTON. So that over a period of 4 years the Commission slowly led you to believe that the prices would be of a certain order of magnitude, and when it came actually to getting to the starting line, they dropped this sharply on you, with the result that you come out with lower revenue which makes your privately financed project infeasible?

Mr. CISLER. We did not discuss value of products in any detail until the discussions late last spring and summer. Those were different than the figures of December. The December figures have substantially remained the same. It just means that so much more money has to go into the developmental aspect of this.

Representative COLE. Can you tell us percentagewise how much the December prices were less than you had anticipated? When you

say substantially less, that means that they were considerable, but still does not carry much direct information.

Mr. CISLER. I would feel that they were perhaps as much as half less.

Representative COLE. You mean the actual prices were about half of what you had expected them to be?

Mr. CISLER. I would say of that order.

Chairman ANDERSON. You mean the December or January?

Mr. CISLER. No; the December and January were about the same.

Representative COLE. We are referring to the same prices.

Mr. CISLER. No; I am thinking of prices earlier in 1954 as compared to prices late in 1954.

Representative HOLIFIELD. Was the price that was finally set related to the B. t. u. value of the fuel?

Mr. CISLER. I don't believe it was approached in that way, Congressman Holifield. At least I have never related it that way.

Representative HOLIFIELD. We can go into that in executive session as to how they arrived at the price schedule. I do not happen to know what it is myself.

Mr. CISLER. I don't know myself, but I have never connected it with the B. t. u. value.

Representative HOLIFIELD. That is what we are selling, the heat that will be produced in the Duquesne reactor, the PWR. That is being sold on the B. t. u. basis.

I want to go back to the beginning of your presentation. I believe you testified either in answer to a question or in your presentation that at the present time there is no commercially competitive reactor plan in existence that you know of. Is that substantially correct?

Mr. CISLER. Yes, I believe it is.

Representative HOLIFIELD. You were questioned about the large-scale reactor in England, and the projected cost of the kilowatt-hours produced there. As a matter of fact, all of those reactors are in construction, are they not, and any estimate of the cost in mills of the power produced is completely conjectural.

Mr. CISLER. Yes, it can be no more than an estimate, because they have not actually put it in operation.

Representative HOLIFIELD. They have no history of cost operation or anything like that.

Mr. CISLER. I believe that is true.

Representative HOLIFIELD. It is also true that those reactors are being built by Government money; is it not?

Mr. CISLER. I believe that is true; yes, sir.

Representative HOLIFIELD. So if there is a cheap cost-producing reactor built, it will be done by Government funds in England. If they get the jump on us along that line, it is because the Government of England has stepped in and financed these large scale reactors where we have not been doing that here, except in the *Nautilus* engine, and that type of development.

Mr. CISLER. I think, Congressman Holifield, the situation in England, as I know it, is a little different than in our country, because in the case there the electric-power industry—the interconnected industry there—has the British Electric Authority, which took over from the Central Electricity Board, and the other systems there, and is a nationalized industry.

Representative HOLIFIELD. That is right.

Mr. CISLER. In this instance, the Atomic Energy Commission is doing the research and development, and actual construction work, and then will turn it over to the BEA for operation.

Representative HOLIFIELD. That is right. It is Government financed.

Representative COLE. On that point, may I inquire if you will not agree that even though the funds for the construction of the reactor may be from the Government and the reactor itself built by a Government agency, the question of the cost of generating the kilowatt energy cannot be evaluated and appraised until you know what costs are used as the basis of arriving at that cost of production.

Mr. CISLER. Most certainly so.

Representative COLE. You could say today that we in America can produce electric energy at 3 mills, providing we have a mental reservation in our mind that we exclude in the computation certain costs.

Mr. CISLER. That is very true on the processing, for example. It is not a true measure. It is not a competitive measure of cost.

Representative HOLIFIELD. That is right.

Mr. CISLER. That is the thing we have to accomplish in this, to get a true competitive value to atomic energy. We will only do that by very hard work.

Representative HOLIFIELD. I am in agreement with that. You spoke of a period of development. We are in that period of development now. Private industry is going ahead and doing certain phases of it, and I compliment your company as being one of the most advanced, and going along as fast as I know with one of the most energetic programs of the private groups. But in addition to the work you are doing, the AEC's 5-year reactor program is really doing the major part of the research and development work in the field at the present time.

Mr. CISLER. I believe that is true.

Representative HOLIFIELD. I am speaking activitywise and dollarwise.

Mr. CISLER. Yes.

Representative HOLIFIELD. After these reactors which they are now programing are constructed, they will have to be operated before the costs can be established; will they not?

Mr. CISLER. Yes, sir.

Representative HOLIFIELD. That is, the average costs for a period of time.

Mr. CISLER. Yes.

Representative HOLIFIELD. After that occurs industry is going to be in a much better position than it is today to evaluate both the types of reactors and their respective economies of operation, and their respective efficiencies than they are now; is that not true?

Mr. CISLER. Certainly if industry wanted to wait that long they could have operating data which they could evaluate and the like. I have the feeling that the power industry, as it has always done in the past, can accelerate the accomplishment of this. The power industry in having installations of its own can get its own operating experience. They continually seek to produce power at lower cost by all kinds of engineering and technological advancements. I see that

first hand every day in our own business. I think it is true throughout the industry.

Representative HOLIFIELD. I might say I am in favor of that. I have no opposition to industry doing as much as it can during this developmental period. The thing I wanted to evaluate at this time was the relative contribution which industry will make dollarwise to this research and development to that of Government.

Let us take your projected contribution of $3,815,000. That is a lot of money for a private industry group to put into research and development. But the Government has allocated something like $200 million for the program this year. So looking at it from the standpoint of facilities constructed for research and development, moneys to be expended, personnel to be employed and activity in the program, the fact remains that the majority of this research and developmental work must be borne by the Government within the next few years with such help as it can get from industry.

Mr. CISLER. I think the Government must carry on a great deal of research and development work. We have always felt that way. Government has facilities that private industry does not have. Again I feel that is a matter of cooperation between Government and industry. I would be hopeful that as industry can take more of the load, that there can be a decline in the cost to the Government of doing that work.

Representative HOLIFIELD. We are all hopeful of that. We realize the urgency of getting along with the job. Although some of my friends have disagreed in the last few days on this committee with the utilization of chapter 31 or paragraph 31 in the act, and the inclusion of contracts for research and development in 104, and later the transfer to 103, I have felt that it is an absolute necessity that the Government does participate in partners with industry. The only thing I have asked is that where they do participate and where they do grant research and development contracts to industry, that industry compensate them for that factor by making known the technology. That is exactly what you folks are doing now.

Mr. CISLER. That is what we intend to continue to do.

Representative HOLIFIELD. I say this is a very good provision in there, because I honestly do not believe Government is ready, and I think you testified to the fact that they are not ready, to go in with the present state of the art and put up fifty or one hundred million dollars.

Chairman ANDERSON. Government or industry?

Representative HOLIFIELD. Excuse me, industry. Industry is not ready at this time to put up fifty or one hundred million dollars to build a full-scale reactor, because they know it will not be economic. You folks are interested naturally in the things that are economic. You must be to protect your stockholders' money. This seems to me to be a logical and legitimate way whereby the Government can go into partnership with industry and industry can obtain the results of it, and at the same time make those results known to the rest of industry. As I understand it, you more or less have testified along that line.

Mr. CISLER. I am sure we could not carry out the accomplishment of the breeder reactor without the cooperation and assistance of the Government, because the Government has these facilities and has a great deal of experience, and we are drawing on that.

Representative HOLIFIELD. You must have access to all of the work that has been done on that at Oak Ridge in their experimental reactors down there. Not only that experience, but the experience of these people in solving problems which will arise when you start building this full-scale reactor.

Mr. CISLER. Yes. In this case our relationship is most close to Argonne, because of their very great interest in the breeder.

Representative HOLIFIELD. I was thinking of the first work that was done at Oak Ridge.

Mr. CISLER. Yes.

Representative HOLIFIELD. Most of that has been transferred to Argonne.

Mr. CISLER. I think on the breeder work that has been in Argonne. Of course, they were responsible for the experimental breeder reactor. We have a very fine relationship with Argonne.

Chairman ANDERSON. Following along Mr. Holifield's line, if the Government is going to put up the money, why should not the Government go ahead and let these fine scientists at Oak Ridge and Los Alamos and Hanford start building some reactors down there, and the Government own them?

Mr. CISLER. Mr. Chairman, I believe that there is a great deal of know-how and a great deal of experience in connection with breeder reactor development. I believe this group of 50 or more people that we now have probably is one of the most competent groups in the country, and is probably equal to any other group. I believe that this group and these associates in the Atomic Power Development group can do a great deal to advance forward.

Chairman ANDERSON. So do I. If they wanted to take the plunge and put some of their money in as the Government did—you recognize that the Government put a little money in this before they knew they were going to have a bomb that would explode—then I believe the Government ought to stay out and give them every encouragement possible. But if they want to take the other program of letting the Government put up all the money, then we have to build some where the Government investment already is, and get some benefit out of it.

Mr. CISLER. I think, Mr. Chairman, what we are endeavoring to say here is a proposal that relieves the Government of capital expenditure in carrying forward the developmental program. If we can accomplish a 100,000 kw breeder reactor—and it will be a developmental reactor—the funds for the building of that reactor would come from private sources.

Chairman ANDERSON. I understood from this you did not want it from private sources, because $50 million was a lot of money, and the Government ought to put it up.

Mr. CISLER. No; it was not expected that the $50 million would come from the Government.

Chairman ANDERSON. As a matter of fact, when it comes to the change that is taking place, you are going to make this a nonprofit organization as of March 31.

Mr. CISLER. Yes.

Chairman ANDERSON. Is that done because of the antimonopoly law?

Mr. CISLER. No. We believe we can carry forward the development on a better basis. We have operated through a memorandum

of agreement up to this time, by incorporating it, we believe that it gives better organization; it gives better firmness, provides for even greater participation on the part of its membership, and it is a very distinct step forward in the art of atomic energy.

Chairman ANDERSON. The change from a voluntary association to a nonprofit organization does all those things?

Mr. CISLER. Yes. I believe it will advance forward the research work. As far as the membership is concerned, what we are doing now would not be in any way changed. There would be no greater benefit nor any less.

Chairman ANDERSON. Let me put it this way. Changing to the nonprofit organization from the organization you have does relieve you from the antimonopoly worry; does it not?

Mr. CISLER. I believe that it would; yes, sir. I think it is a sounder way to do business.

Senator PASTORE. Mr. Cisler, do you think that all that can be reasonably done as of now is being done both by the Government and private enterprise? Have you any reactions at all in the way of criticism as to whether or not this program can be speeded up? Can the American people be told as of now that everything that can reasonably be done is being done?

Mr. CISLER. I feel very much encouraged, Senator Pastore, in what is being done. I think there is a willingness for industry to participate in this development. I think the announcement of the Commission on receiving proposals is a very distinct step forward, because they do invite industry to come in with proposals. I would be most hopeful that industry would respond.

Senator PASTORE. You said in your presentation it is pretty hard to get the financing. I can understand that. Do you think the Government itself is putting in enough money at this time in the research and development program?

Mr. CISLER. I can only testify to results which I have seen. Certainly those results are very commendable. I have given particular attention to the breeder reactor work.

Senator PASTORE. Do you think we should be doing more from the standpoint of government?

Mr. CISLER. No; I don't believe so, Senator Pastore. I think Government is doing a great deal and is making a great contribution to this development. I think we must find the ways of bringing the full benefit of that into this peacetime development.

Senator PASTORE. Of course, I have always felt that we are in a contest or in a race with other countries of the world in achieving of this objective of producing electric power by use of atomic energy. Do you feel we are lax in any way?

Mr. CISLER. No, I do not feel we are lax. I think the change in the law provides a great stimulant.

Senator PASTORE. Changing the law itself will not make much difference, unless you get the impetus necessary on the part of Government and industry to do the job.

Mr. CISLER. Yes.

Senator PASTORE. My question specifically is, Are we doing all that could be expected as of the moment to be done in the furtherance of this objective?

Mr. CISLER. I believe we are doing everything reasonable. If we were to go into a crash program, what would be the justification from an economic standpoint? We have sufficient electric power in this country. In fact, we have more than 40 percent of the total electric power of the world.

Senator PASTORE. We are trying to do more than that. Are we not trying to win the hearts and minds of people in other parts of the world? That is one incentive. That is the great inspiration that was given to the world in the speech made by the President. Are we winning that race?

Mr. CISLER. We hope in carrying forward this breeder reactor we are helping in the winning of that race.

Representative HOLIFIELD. I was going to refer to your statement about the 50 people that are working full time on your project. Could you give this committee an estimate of how many of those have been drawn from the AEC program or Government laboratories?

Mr. CISLER. A relatively small number of them, Congressman Holifield, have come from the Government laboratories. A few have. Quite a number have had training in the Oak Ridge school.

Chairman ANDERSON. Only one man, I understand.

Mr. CISLER. Mr. Griswold says that two of them have come directly from the national laboratories. I know of one in particular.

Representative HOLIFIELD. We are losing so many people from the Government projects these days to different industrial firms that I just wondered.

The second question I want to ask you is this: You make the statement for commercially economic reactors, the prices for special materials established by the Commission provide no incentive.

Without going into the basis by which they set those prices, if we assume that they set those prices according to the act on the basis of the need of the Government and possibly with an eye to the use of this material in reactors—and that would be the fuel value of that plus the cost of processing, and so forth—is it not true that if they go above that, that they in effect subsidize your capital investment in reactors, that is, if they would go above those principles, the use of the Government in the weapons field, and the use of the material for fuel in the reactors. If they go above that, then the price would become a subsidy.

I ask you the final question, if the Government is going to subsidize this reactor program of private industry—and I am not so sure but maybe they should do that in order to get ahead with the art—would it not be better to have done it on the basis of open grants, rather than hidden subsidies in the price of the material?

Mr. CISLER. I do not believe that the prices paid for the materials should be in excess of what it costs the Government to produce those materials themselves. I feel that there is research and development work in the national laboratories which could well be justified as a part of the cost.

Representative HOLIFIELD. That would be done anyway with Government funds. I believe that result should be made available to industry. I believe they should embark on a very enthusiastic program along that line, to provide you this information.

I think if they operate under section 31 or the research area section 104, that is should be done on the basis of an agreed-upon sum for an agreed-upon experimental and development project, and the results of that of course would be known to the Government.

Mr. CISLER. That is right.

Representative HOLIFIELD. That would be open and above board. Everyone would have access to the Government's expenditure of money and there could be no criticism of it. But if a few people, being in a fortnnate enough position to have 50 or 100 million dollars to put in a reactor, thereby are insured a contract of repurchase on this material which would in effect subsidize their capital investment, then it becomes discriminatory, and unfair, in my opinion, to the whole of American industry. I am thinking of the whole of American industry.

Mr. CISLER. Congressman Holifield, this does not anticipate any such arrangement as that. We would not seek a value for the materials.

Representative HOLIFIELD. You would say that the principles I have enunciated would be fair to all industry, you folks as well as your competitiors.

Mr. CISLER. Yes, sir.

Representative HOLIFIELD. Thank you.

Representative COLE. On this question of price, Mr. Cisler, when you tell me that the price the Government will finally pay you is about half of what you believed it to be, I can understand why there is a basis for a possible change in your attitude—a possible lukewarmness toward this whole deal.

Can you tell me what part of your anticipated estimated earnings out of the project would be derived from the production of the materials on which this price is fixed? Does the production of the material represent an anticipated earning of about the same as your power earnings?

Mr. CISLER. I will say something of that order.

Representative COLE. Then we have this situation——

Mr. CISLER. That is, the value of the heat energy.

Representative COLE. Then we have this picture. The price for the product you anticipated to produce, being the material, is now about half what you anticipated it would be and the earnings in making that product are about half of the total earnings of the entire project. It is quite understandable that you would be discouraged. I think you have a good right to be discouraged.

You have indicated to Mr. Holifield that you at no time would expect the price to be greater than the cost to the Government of producing that same material. Be careful about your answer now for security reasons.

First let me ask if you know the relationship between the announced price of the material and the cost of that same material.

Mr. CISLER. I do not.

Representative COLE. Very well. I of course will not ask you the next question.

Chairman ANDERSON. We will turn now to Mr. McQuillen.

Mr. McQuillen, I am going to ask you to read right on and not be stopped by God or man.

STATEMENT OF PAUL W. McQUILLEN, CHAIRMAN, LEGAL COMMITTEE, ATOMIC POWER DEVELOPMENT ASSOCIATES

Mr. McQuillen. Mr. Chairman and members of the committee, may I ask your indulgence at the moment at the start to answer the question exactly that was asked me earlier?

Having referred now to the Commission contract, my recollection is refreshed and my lack of recollection of a prohibitory provision is justified, because our agreement with this study group provides simply that the group will consult with the Commission before releasing to the public statements relating to the work under that agreement. I believe I am correct in saying that it has never occurred to either any of the Commission staff or any of us to consider that a statement made in response to an invitation by this committee of the character made here today would come within the intended scope of the contract provision concerning release of statements relating to work under the contract. That question about release of statements relating to work was applied very liberally, and going even strictly beyond that with respect to membership in a group and so on has always been carefully cleared.

Representative Cole. Mr. Chairman, since Mr. Allardice is not here, and he raised the question, I think in fairness to him, his question did not indicate a criticism of the fact that the statement had not been submitted, but simply to inquire to what extent this clause in the contract was carried out.

Mr. McQuillen. I am critical of myself for not having the answer clearly in my mind, and would like to put it in the record at this time.

Now, sir, may I proceed?

Chairman Anderson. Yes, indeed.

Mr. McQuillen. My name is Paul W. McQuillen. I am appearing in response to the invitation of this committee, as chairman of the legal committee for the 33 companies engaged as a study group in this field and called Atomic Power Development Associates. I am a member of the firm of Sullivan & Cromwell, general counsel for the Detroit Edison Co., one of the original members of that study group.

At the time of your hearings last spring one could talk about a private atomic energy industry only in terms of future legislation. Today we can address ourselves to the legal state of that industry as an existing thing with challenging problems and great hopes.

Broadly speaking, the industry must go through three stages of growth: first, research and experiment; second, development and demonstration; and, third, commercial use. The legal problems grow correspondingly.

The first stage was well started under the old law and has been accelerated under the new. Its legal path is fairly smooth, and the continuance under the present law, with the provisions particularly under section 31 for the encouragement and assistance of research, is still quite clear. That is why I said earlier that we are not being hindered by any lack of legal clearance or obstacles or regulations for the continuance of the study and research of this group. That is also why it might be likely that they would go ahead simply under an agreement rather than under a license, because the license would have to await the issuance of regulations and a license does not appear to be essential for the immediate continuance of this study work. But

whichever way it comes, that is not a legal obstacle. It is not even a legal problem. It is just a matter of legal machinery which I am sure can be met without difficulty.

The second stage calls into play many of the provisions of the new law and cannot be fully embarked upon until the law has been sufficiently implemented by rules and regulations. Understandably the Commission has not completed that monumental task. There are certain features of the 1954 act, however, which complicate the task for both the Commission and the industry.

Bearing in mind that development and demonstration in this field are highly expensive, certain legal conditions become equally important. Perhaps the principal one is the Government monopoly of special nuclear material, preventing the competition among licensees which would establish market prices for materials and products on the basis of which financing could be planned.

The many millions needed to build a big enough reactor to demonstrate practical value must, therefore, either be loaned or invested in reliance on, and necessarily in relation to, prices fixed by the Commission—which would be subject to the 7-year limit under section 56—or be provided as a part of current business expenditures of the developers.

Assuming that the money to build a reactor would be forthcoming, there remains a very great worry about protection against consequences of atomic accidents. As you gentlemen well know, this is not a new worry, but it becomes more acute as we near the day of private operation. This worry is shared by the equipment manufacturers and all others who would have identifiable responsibilities for parts of a reactor or its operation, as well as by the prospective owner of the facility. It is to be hoped that the worry will be shared by Congress and that the risk of loss from atomic accident will in some way be spread over a broad base which will make it bearable and will provide fair compensation for the direct victims.

Concretely, section 53 seems to forbid any Federal assumption of any part of the risk except, I think, any resulting from the fault of someone acting for the Government. That leaves the ones who suffer at the mercy of the resources of the responsible defendants, which could easily be inadequate to meet claims from a major accident. The considerations of public policy which led to war-risk insurance and, before that, to limitations of liabilities in some other types of cases might well lead to new legislation along similar lines.

As an immediate step to ease the problem, a downgrading or declassifying of information about incidents of atomic operations, including records of near misses and of the great effectiveness of precautions of design and operation, which have been and must always be the fundamental protection, should be helpful in advancing the mutual efforts now underway to obtain and provide private insurance in substantial amounts for this new class of risks. If the insurance companies, through a limited number of cleared personnel, were furnished with data from which they could work out ratings, the first several million dollars of any loss, less some deductible sum, could be carried by the existing insurance industry. There would then remain the excess risk, beyond the capacity of the private insurance industry, to be left to the accident of incidence or otherwise dealt with as a matter of public policy.

In time, with experience and after study by both the insurance companies of the country and the regulatory officials sharing responsibility for their operations, it seems fair to hope that reserves may be established and risks may be pooled, as has been done in the past in other types of liabilities new and frightening in their time.

It now seems unlikely that private industry will ever be able to underwrite the whole risk of atomic accidents, but it should be able to carry a substantial amount of the load. Meanwhile, private persons may be unwilling to risk all their possessions and utility commissions may be unwilling to allow utilities to risk their assets essential for the regular public service in an endeavor to tame a new force which conceivably might destroy them in the process.

Before the third stage of commercial use can be reached these problems must be solved. It cannot be expected that anyone will go into the new business unless he has confidence that it will be good.

In addition, for commercial use there must be confidence that the business will be able to and will be allowed to operate long enough to recoup the investment and to earn upon it. Some further provisions of the 1954 act thus become more critical for the third stage. Anxieties about those may be much relieved when the rules and regulations are issued, and doubtless will be further quieted by experience with administration. It seems worthwhile, however, to comment briefly upon some of these points for your consideration when commercial use will be near upon us.

A construction permit does not give full legal assurance that it will ripen into an operating license upon fulfillment of conditions within control of the applicant. Yet the cost of construction must be financed in reliance upon the mere permit. There is too much at stake, with too little chance of salvage, to deal with a reactor as though it were largely a movable piece of equipment readily resold.

The supply of special nuclear material essential to operation is left somewhat uncertain. Section 53 authorizes the Commission to make such material available for the period of a license for its possession. The source is dependent upon allotments made from time to time under section 51. Presumably the Commission will give as much permanence to its allotment as seems prudent in the light of the national interest from time to time. If this committee and the Commission consider that the act authorizes licenses for possession and use of special nuclear material and arrangements for its supply for a period coextensive with a license for ownership and operation of a facility, chapter 6 seems to allow sufficient leeway as it is now written.

I comment on that point simply because there has been some discussion upon it. There may be room for construction. Unless the construction is as I have described then there will be an element of doubt and uncertainty with respect to the necessary materials for the continued operation of the very expensive equipment.

But assuming a reactor has been built and a license obtained to operate it, and material needed to keep it operating, the owner would then be faced with the possibilities of modification, revocation, and suspension.

Modifications of licenses by rules and regulations under section 187 will be restrained, it may be expected, by wise use of administrative discretion, but some statutory standards would make it easier to negotiate with lenders of money.

The powers of the Commission to revoke licenses are still almost unlimited. Here also some statutory standards of materiality in relation to public health and safety and common defense and security would help to encourage investors.

Suspension of licenses during a state of war or national emergency is treated in a curious fashion in section 108. Nothing is said about compensation for mere suspension although the section explicitly states that just compensation shall be paid if the Commission also either recaptures any special nuclear material or operates the facility. Suspended animation could be ruinous if it is to be implied that compensation shall not be paid for that. So construed, the provision might be unconstitutional, but it seems better to make the section clear and fair by language in that statutory part.

These comments, as you can see, are all made in relation to the goal of this study group. They do not touch upon the phases of the act important to other endeavors or to governmental functions, either international or domestic. I have also tried to avoid details and points of lesser consequence. The big roadblock we see ahead is the danger of liabilities for injuries and damages without insurance protection.

Thank you.

CHAIRMAN ANDERSON. If there is no objection, I would like to let Mr. Allardice file with you some questions which can be answered by you subsequently for the record and give Mr. Beckerley a chance to present his statement. I think when we have invited someone, it is not fair not to let him present his paper.

Mr. MCQUILLEN. It is quite agreeable with me.

Chairman ANDERSON. Thank you very much.

Representative HOLIFIELD. Before Mr. McQuillen leaves, I followed your testimony carefully. You have made some suggestions there in regard to amendments of the act. I wonder if you would favor this committee with a presentation to us at some future time in writing of the type of amendments that you think would accomplish the purposes for which you have suggested our consideration?

Mr. MCQUILLEN. I would be glad to undertake the task.

Representative COLE. Let me say Mr. McQuillen was very helpful in drafting the other law. I think the results of his handiwork are very appropriate observations. I compliment you for bringing these omissions to our attention, and concur in Mr. Holifield's suggestion that Mr. McQuillen help draft appropriate amendments.

Mr. MCQUILLEN. Thank you. We are appreciative of the opportunity.

(The information referred to above follows:)

FEBRUARY 11, 1955.

Hon. CLINTON P. ANDERSON,
Chairman, Joint Committee on Atomic Energy,
The Capitol, Washington, D. C.

MY DEAR MR. CHAIRMAN: In response to the questions which had been jotted down by your staff and were given me at the close of my appearance last Monday, I respectfully submit the enclosed supplemental statement in reply.

Understanding that you wish to have 25 copies of anything so furnished, I am sending that many.

The further kind suggestion that I might submit to your counsel for consideration drafts of specific amendments to give more concrete expression to some of my comments, I have in mind. I discussed that briefly with Mr. Norris after the hearing, and plan to communicate directly with him.

Respectfully yours,

PAUL W. MCQUILLEN.

Supplemental Statement Submitted to Joint Committee on Atomic Energy by Paul W. McQuillen

This supplemental statement is submitted in response to questions handed to me at the end of my appearance at the hearing on Febraury 7, 1955, which I was requested to answer in writing to conserve time that afternoon.

The first question concerned time limits on prices for special nuclear materials. On page 2 of my statement, I had said in effect that the money for a large reactor would have to be either attracted by prices fixed by the Commission or simply provided by the developers as part of current business expenditures. In referring to Commission fixed prices, I parenthetically noted that those would be subject to the 7-year limit under section 56. I was asked whether that 7-year limit was the nub of my problem. I think not.

It might be easier to arrange financing if prices for materials and products were fixed for a longer time, especially when much of the first 7-year period is bound to be occupied with construction and hence be unproductive, but the essential trouble is that a fixed price automatically fixed income within very narrow limits, and that in turn fixes the range of possible financing. If prospective income is not enough to support the amount of money needed to build a reactor, one cannot expect to raise the money on a commercial basis from either lenders or investors.

The alternative under the 1954 act must be either a pooling of appropriations for research and development, which can be afforded as current business expenses, or individual action by a company with resources large enough to be able to afford such a costly development.

Another alternative, requiring amendment of the law, would be the free play of competition in a market for essential materials and products. If persons licensed to possess and use special nuclear materials were allowed to trade among themselves and to trade with the Commission, true economic values should become established in a fairly normal way. The incentives which have ever inspired pioneers would have a chance to operate, and the resultant prices should be expected to have a closer relation to costs of private operation than might be the case if they were fixed solely and absolutely by the Government.

The paramount right of the United States to control the amounts of material made available for private use, and the right to recapture material for national needs in time of national emergency would, of course, continue in being and necessarily restrict the freedom of the market. Even subject to such limitations, however, I think that an opportunity for competition would help to advance the art and that greater freedom is bound to make for greater progress.

Another question was whether any change should be considered in the period of time allowed for commercial licenses. The act now permits as much as 40 years. I have not seen or heard anything which leads me to believe that the 40-year limit is acting as a deterrent to persons wishing to enter this field.

With respect to the supply of special nuclear material, I was asked whether sections 53, 103, 104, and 161, when read together, gave the Commission adequate authority to provide any licensee with such supply of special nuclear material as might be essential to its licensed operations. I believe that they are sufficient for that purpose.

The period of any license or group of licenses, granted to a licensee under section 103 or section 104 of the act, will be appropriate to the type of activity licensed and will carry with it the possibility and, I believe, the likelihood of a renewal of the license at the end of its period, if there is a continuing public purpose to be served by such renewal.

Under section 53 the Commission is authorized to make special nuclear material available for the period that a license is granted for its possession and use. Section 161 expressly authorizes the Commission to consider together all proposed activities of an applicant, and to combine in a single license whatever permissions are to be granted for the licensed operation. I mentioned in my statement the need for certainty of supply only because I had heard some doubts expressed. I do not share those doubts.

Research under a contract or under a license is also a matter upon which I was asked to comment. For the immediate future, this year, the renewal or extension of arrangements for study and research on the part of the companies in the group called Atomic Power Development Associates could, it seems, most quickly and easily be handled by contract under section 31. However, a license under section 104 (c) would be desirable for the future and appears to afford a better basis for business work.

Construction permits. I was asked whether my worry about financing under a mere construction permit would be satisfied if there were eliminated from section 185 the phrase "and in the absence of any good cause being shown to the Commission why the granting of a license would not be in accordance with the provisions of this act." I think the answer is "Yes." The rest of section 185 does not, I think, pose a difficult problem.

The last subject was possible statutory standards concerning suspension, modification or revocation of licenses. I spoke briefly about that after the hearing to counsel for this Committee and will endeavor to submit later something on that subject, without delaying this present response.

Chairman ANDERSON. Mr. Beckerley.

STATEMENT OF DR. JAMES G. BECKERLEY (PHYSICIST, SCHLUMBERGER WELL SURVEYING CORP., RIDGEFIELD, CONN., FORMER DIRECTOR OF CLASSIFICATION, ATOMIC ENERGY COMMISSION)

Mr. BECKERLEY. I would like to say that I appreciate the opportunity to appear before this committee. You will recall that I worked with the committee during 1953, and I am glad to be back here again.

Representative HOLIFIELD. Before Dr. Beckerley starts, I wonder have you given in the top lines of your statement the people you are affiliated with?

Mr. BECKERLEY. Yes, sir.

Chairman ANDERSON. You better read it into the record.

Representative COLE. I suggest you let the record also show your former position with the Commission.

Dr. BECKERLEY. Yes, sir, I have it on the statement at the top.

I would like to confine my comments to the information control and security provisions of the Atomic Energy Act of 1954 with particular reference to their effects on the development, growth, and state of the domestic atomic-energy industry. As Director of Classification for the Atomic Energy Commission during the period July 1949 to August 1954, I was responsible for administering and interpreting the control of information provisions of the Atomic Energy Act of 1946 as they affected the classifying and declassifying of technical data. My comments will be based primarily on my experiences as Director of Classification with some outside seasoning furnished by industrial-research experience both before and after Government service.

In Section 11r of the Atomic Energy Act of 1954 the term "restricted data" is defined as—

* * * all data concerning (1) design, manufacture, or utilization of atomic weapons; (2) the production of special nuclear material; or (3) the use of special nuclear material in the production of energy, but shall not include data declassified. * * *

When compared to the act of 1946 it is apparent that the scope of "restricted data" is essentially unchanged by the new statute. In fact, the use of the broader term "special nuclear material" in place of "fissionable material" could be said to increase the scope of "restricted data."

Of course, the new statute does make important changes in those sections concerned with declassification and with personnel security clearance so that the AEC should find it easier to justify declassification and should be able to institute more flexible security procedures.

In a sense, the new act does not alter the boundaries of the "restricted data" area but does provide the AEC with authority to regulate the entrances to this area in a more rational manner.

I might make an aside comment on that paragraph. I am not trying to downplay the importance of such additions as the term "undue risk" and so forth in the newer statute. I am simply saying that information in this area will be born classified in the technical description, and the technical description of the area is essentially the same. However, the means of removal of information from restricted data have been appreciably changed under the new law.

I wish to point out today that it is time to consider whether the area of "restricted data" is somewhat oversize for this 10th year after Hiroshima and whether it would be desirable to reduce the restricted-data definition to just all data concerning the "design, manufacture, or utilization of atomic weapons." I should like to point out further that the inclusion of items (2) and (3) in section 11r (i. e., production of special nuclear material and its use in energy production) precludes the rapid and healthy development of a domestic atomic-energy industry.

Since any substantial change in the definition of "restricted data" should be made only after considerable discussion in and out of this committee room, I do not propose to present more than an initial argument for reducing the area of restricted data. Others will be able to add much more to the lists of pros and cons.

In this connection I might add one word of caution.

It may be difficult to secure the views of the principal industrial participants on specific items to be included or excluded from the restricted-data category, particularly where these items have potential industrial importance.

A company presently engaged in Government-supported development on a classified basis of a particular reactor type is placed in an awkward spot when asked whether the work should or shouldn't be completely declassified.

My experience has been that responsible company management tends to adopt a neutral attitude on these matters, and understandably so. I recall one comment: "It's up to the customer," that is, up to the AEC.

It is not going to be easy to secure a consensus from the industrial groups on the desirability of reducing the scope of restricted data where such reduction affects their respective positions in the growing atomic industry.

Reasons for reducing scope of restricted data:

Of the many reasons for reducing the scope of restricted data the following may be cited.

1. Continued secrecy in the technology of producing fissionable material and nuclear energy does not appear to deter the nuclear arming of the U. S. S. R. Hence, the whole purpose of secrecy is defeated.

2. Information control is a dangerous activity for a democracy and should be limited to those areas where clear gain in the national security can be achieved.

3. Industrial development will be greatly handicapped by Government control of the dissemination and handling of technical data of potential commercial value. Moreover, since the control is not in

the hands of those who stand to benefit by best use of the information, the dissemination of technical data is most likely to be unwise and not entirely effective.

4. Control of materials provides adequate protection to the public safety; control of information provides an unnecessary additional safety factor.

With respect to the first reason, it is unnecessary to emphasize U. S. S. R. progress to date in nuclear arming. It constitutes a dangerous threat to world security. We can only meet the threat with material and spiritual strength. A part of our national strength will be derived from a thriving atomic industry operating under all the benefits of free and competitive enterprise, the kind of enterprise which has helped bring us to a position of international leadership. Since the U. S. S. R. appears to have invested vast resources of men and materials in the production of fissionable materials and atomic weapons, our withholding publication on such information as design data for nuclear-power reactors has, I believe, a negligible effect on the U. S. S. R. program.

I might interpolate there that I mean as of today and in the future.

Not only will our continued secrecy on nonweapons matters fail to affect Russian rate of stockpiling of fissionable materials and fission and fusion weapons but it will weaken our national strength by reducing our exploitation of this new source of energy.

In reducing our rate of exploitation of the atom we are not just denying ourselves luxuries but, rather, new basic resources. The development of remote mineral deposits, the opening up of new frontiers in manufacture of materials and in chemical processing, the conservation of premium fuels—all these are delayed whenever any impediment is placed in the way of full-speed growth of the atomic industry.

It has always been a source of amazement to me how lightly many persons consider Government control of information. The lifeblood of our Nation consists as much of the flow of ideas as of materials. I do not need to remind you of the constitutional safeguards for freedom of press and speech or of the ways in which the practices of censorship have been circumscribed even in wartime. We have a tradition of minimizing Government control over information. This tradition has been reinforced in recent decades by observing a common denominator of totalitarian slave states; namely, the control of the flow of ideas by central authority. In spite of this tradition the Atomic Energy Acts of 1946 and 1954 both require rigid control by the AEC of a steadily increasing body of technical data, a substantial part of which is not directly concerned with atomic weapons, design, or manufacture.

The reasons for this control were valid as long as unfriendly nations had not made comparable technical advances in the grim arts of nuclear armaments. I do not believe they are valid today. As a consequence, we should now move to reduce the controls over nonweapons data just as, at the completion of hostilities, censorship is reduced. To continue the present broad control of atomic information without adequate reasons is to embark on a dangerous course where the Government stands between ideas and men.

The third point I should like to make in support of reducing the scope of restricted data is perhaps most pertinent to this hearing.

The present arrangement where the Government holds the key to the atomic industrial technical library and determines who may or may not read therein and where the handling of correspondence or the conference of technical personnel is under Government regulations; this is not normal United States industrial practice. It certainly is not characteristic of free enterprise for a firm to be so closely regulated in his handling of ideas. Some say the present setup is similar to "industrial secrecy." This is not so.

Individuals or groups of individuals may control information which they themselves have developed. This practice of trade secrets is an entirely different procedure from Government control of information developed at public expense.

The right of individuals to develop and maintain trade secrets is an expression of the right of private property. It is essential to understand that industrial secrecy is not only different in kind but also in degree. Information on reactor technology controlled by the AEC under the Atomic Energy Act is not just a small part of the data in existence; it is a very large part. If any United States firm were to hold such a large block of technical knowledge as trade secrets it is likely that antitrust proceedings would be considered.

Other characteristics of the control of information under the Atomic Energy Act differentiate it from industrial secrecy. The most important from an industrial point of view is the fact that the scope and extent of the control is not determined by the one who is using it, but by a Government agency. If company A has a trade secret then it can handle the trade secret in any manner it deems appropriate. On the other hand, if company A has access to restricted data or develops restricted data on its own it can only act according to AEC regulation. Moreover, unlike normal industrial secrecy, the one who controls dissemination of classified technical data is not the one who stands to benefit directly by proper use of the information. No matter how conscientions and wise a Government administrator is he can never feel the same compulsion to see that technical data are put to maximum use.

A further difference between industrial secrecy and AEC information control lies in the fact that mishandling of restricted data is a serious breach of Federal law; mishandling a trade secret is a breach of trust.

Further comparisons can be made to show that the control of information under the Atomic Energy Act is not at all comparable to industrial secrecy or the practice of trade secrets. The differences are fundamental and should not be minimized.

The last point I should like to make in support of reducing the scope of restricted data is that control of industrial information is a surplus safety factor. There is no doubt that the interests of national security and public safety require control over production of special nuclear materials. This control is most effectively maintained by control of materials, not ideas. The control of the basic materials essential to reactor operation gives us our real security against clandestine manufacture of dangerous nuclear materials.

In fact, there appears to be widespread confusion between an idea and the associated material. The drawings and specifications for a house are not to be confused with the house itself. When one is given the plans by an architect he still does not have a roof over his

head. I believe the AEC has ample control over nuclear materials and facilities to assure our national security. I believe that adding control of nonweapons information does not increase our national security but, as time goes by, has the effect of reducing our national atomic strength.

Interim proposals: As noted before, any substantial change in the scope of restricted data will require time for careful and extended discussion. In the meantime I believe there are some specific actions which should be taken by the AEC under the present act, which actions will aid the growth of the domestic atomic energy industry:

1. All data on certain contributing industrial activities should be declassified.

2. Essentially all pre-1950 nonweapons atomic patent applications presently held under secrecy order should be declassified. The exceptions should be clearly and publicly defined.

3. The AEC should prepare a public report, primarily for use of scientists and engineers, describing the technical nature of what nonweapons information is presently held classified.

Under the first action I would suggest that complete declassification of all data on the manufacture and properties of hafnium-free zirconium and the alloys thereof. This is a new material whose industrial uses have been explored only to a limited extent.

I can offer a number of additional technical reasons for this action, but will not do so now. Suffice it to say that I believe it was a mistake to have classified this work in the first place. I supported its classification. In retrospect I believe we have lost more than we gained by putting a byproduct activity under the restricted data blanket.

Other contributing industrial activities which should be completely declassified are those concerned with the manufacture of heavy water and high purity graphite. We have probably gained some time by withholding publication in these areas. However, in 1955 the primary support appears to be derived from tradition rather than current rational appraisal. These materials, as well as zirconium, should be manufactured in the usual manner of a free and competitive industry. Government release of data presently under security control will help restore these activities to a normal status.

My proposal on patents is based on the belief that the older nonweapons applications are for the most part of limited technical value. Some are held on rather thin grounds. The AEC should be encouraged to lean over backward in getting out of secrecy these older nonweapons patent applications.

My third proposal is based on the observation that many technical people, on and off this project, have an unusually poor understanding of the limitations of present technical knowledge on nonweapons atomic matters. Many research and development activities are not undertaken by universities and industrial groups in the mistaken belief that the knowledge already exists, buried in a classified report. Publication of such a check list would help reduce such misconceptions. Moreover, it would provide useful material for United States atomic industry as a whole in its evaluation of where it might contribute. As a starter, the AEC might consider an outline summary of what is known but not published about the metallurgy of uranium and

its alloys. It will be interesting to compare this outline with an outline of the status of technical knowledge on some commercial metals.

These few specific suggestions are offered in the hope that the progress of "creeping classification" by the AEC—and I must admit a share in this—will be curtailed. It is surprising how far the definition of restricted data can be stretched by conscientious and technically qualified persons. I recall a long staff debate over the release of data on leakproof pressurized water pumps, the so-called canned pumps. With the broad language of section 11r of the Atomic Energy Act of 1954, that is "* * * all data concerning * * *" it is remarkable that the restricted data stamp has been used with restraint.

I hope that my few remarks will be preliminary to further discussions in this committee on the basic issues raised. What I have tried to point out is that we are really deluding ourselves in believing that the atomic energy industry can achieve anything like a normal growth rate with such a large body of technical data under Government security control. Relaxation of the security measures by adoption of the so-called gray area will ease the situation somewhat, but it does not get at the root of the difficulty.

One of the reasons this Nation has experienced such a phenomenal industrial growth is the fact that industrial leaders have taken bold actions and have exerted maximum individual initiative. Do we expect United States industry to display the same courage and initiative in an activity where even the flow of ideas requires government intervention?

I believe we have to move ahead in this business unimpeded by rules and regulations that made sense in days past. A great university recently completed a year-long celebration with the theme of man's right to knowledge and the free use thereof. It was a noble theme. In certain atomic-energy matters this right must be temporarily abridged. However, we must continually assess the extent of this abridgement and reduce its extent as circumstances dictate.

In brief, the scope of restricted data in 1955 should be considerably less than the scope in 1946, particularly if the growth of the atomic energy industry is to be more rapid in 1955 than in was in 1946.

Chairman ANDERSON. That is very helpful.

Are there any questions?

Representative COLE. None, Mr. Chairman, except to compliment the witness for a very fine presentation.

Chairman ANDERSON. I think it is exceptionally good. We will regard it as what you said, it is preliminary to further discussions in this committee.

Dr. BECKERLEY. In my letter to the committee staff I said I would say something about the cost problem. I have not included anything in this statement due to an oversight. However, this is a problem which you will have to wrestle with. The classification of cost data, of course, always goes back to the production of fissionable material. This is a matter which I don't believe we have faced up to squarely. If we are going to put the atomic energy interests on a sound cost basis where one can really discuss some of these numbers publicly, we are going to have to face up to the fact that we will have to release information which will give at least orders of magnitude or perhaps better estimates of our fissionable material production rates to possibly unfriendly nations.

Representative HOLIFIELD. You are speaking of current production.

Dr. BECKERLEY. Yes, sir.

Representative HOLIFIELD. That would not necessarily reveal the amount of our stockpile.

Dr. BECKERLEY. No, sir. It would give you a lever on it, though.

Representative HOLIFIELD. In other words, if we started in with today's prices it is possible they would know the production, but they would not necessarily know what was produced in the past.

Dr. BECKERLEY. Yes; or even better, if you used projected rates. In other words, if you foresaw that the reactor would not be in place tomorrow, you gave estimates of the cost as to what you thought it might be a year from now. This would be more difficult to trace back.

Representative DURHAM. Doctor, you read a good many scientific journals from all parts of the world. What is your thought now in regard to the control of information in this country, and what you secure through journals in other parts of the world?

Dr. BECKERLEY. With respect to the Russian program, for example, the journals say essentially nothing about their program. With respect to the European programs, they have practiced, I am quite certain—I know personnally some have admitted practicing—some withholding of technological data. This, of course, brings up the question, obviously they are holding it for a national advantage point of view. Whether one is to consider the restricted data as a vehicle for withholding information for the national advantage, I think this is quite debatable. I don't read the statute that way. I read it that we withhold information because we are very much worried that someone else will use that information and hurt us, that we don't withhold the information in order to secure a national advantage in negotiations with other countries.

Representative DURHAM. The reason I asked you the question is probably you would assess it on the basis of whether or not you thought we were giving as much information as those who may be in a competitive position trying to do this job.

Dr. BECKERLEY. If you consider it from a proportional point of view, I believe that the Norwegians, for example, have released much more information of the total amount of information they have developed on their project than we have. This is a very difficult thing to get a measure on.

Representative DURHAM. I know it.

Chairman ANDERSON. The meeting is adjourned until 2 o'clock tomorrow afternoon.

(Thereupon at 4:55 p. m., Monday, February 7, 1955, a recess was taken until Tuesday, February 8, 1955, at 2 p. m.)

DEVELOPMENT, GROWTH, AND STATE OF THE ATOMIC ENERGY INDUSTRY

TUESDAY, FEBRUARY 8, 1955

CONGRESS OF THE UNITED STATES,
JOINT COMMITTEE ON ATOMIC ENERGY,
Washington, D. C.

The Joint Committee met at 2 p. m., pursuant to adjournment, in room P–63, the Capitol, Senator Clinton P. Anderson (chairman of the joint committee) presiding.

Present: Senators Anderson (chairman), Gore, Jackson, Hickenlooper, Millikin, Bricker and Pastore; and Representatives Holifield, Price, and Cole.

Present also: Corbin C. Allardice, executive director, George Norris, Jr., counsel to the joint committee, and Walter A. Hamilton of the professional staff of the joint committee.

Chairman ANDERSON. The committee will be in order.

Mr. Murray, you indicated that you would be ready to make a statement today in response to the questions directed to you by Representative Cole. Are you prepared to do that at this time?

STATEMENT OF THOMAS E. MURRAY, MEMBER, UNITED STATES ATOMIC ENERGY COMMISSION

Mr. MURRAY. I am prepared to do that, Mr. Chairman.

Chairman ANDERSON. Proceed.

Representative COLE. Mr. Chairman, I do not recall having requested Mr. Murray to submit an additional statement or data. Perhaps that may have been the result and outgrowth of my interrogation of what appeared to be a change in attitude on the part of Mr. Murray. I of course have no objection to Mr. Murray making a statement, but I doubt if the record will show the statement which he might make now is in response to a request which I may have made.

Chairman ANDERSON. I am probably in error. I thought there was a request to him to furnish material.

Representative COLE. I do not wish to make a point of it. If I am in error, I hope Mr. Murray will correct me.

Chairman ANDERSON. Did you not have a feeling, Mr. Murray, that you had been requested to prepare a statement?

Mr. MURRAY. I had the feeling I should submit any data that was available to me to support my position. I tried to explain to Mr. Cole that I had not changed my position.

Representative COLE. Go ahead. I withdraw. It is not worth spending any time over.

Chairman ANDERSON. Proceed.

Mr. MURRAY. On Tuesday last I was questioned about what was mistakenely assumed to be a change in my position on the Dixon-Yates contract. Let me repeat, my attitude has not changed. When I approved signing the contract last November I testified before your committee that I did so in the public interest in order to free the Commission to devote its entire efforts to its primary responsibilities. This is precisely my position today.

I have been on the Commission for almost 5 years and as long as I remain a Commissioner, it will be part of my duty and purpose to do what I can to keep this vital agency of Government free from partisan politics. The present atomic strength of this Nation is due in large part to the fact that heretofore partisan politics have never been interwoven with the Commission's decisions or activities. Yet we find the Commission today squarely in the middle of a most controversial issue, that of public versus private power.

On this issue my views are well known. I was raised in a world of private enterprise, and particularly in an atmosphere of private power operations. This experience has convinced me that, on a comparable basis, private utility companies should be used to satisfy the demand for electric power. I believe it just as firmly as ever.

But this issue of the relationship between public and private power is one that is entirely different from the real question before us, namely, whether or not the Commission should be used as a power broker to satisfy the commercial civilian power needs in the Memphis area. There is no basis for misconstruing my actions on this real issue as an attempt to impede the growth and development of private utilities. Whatever actions I have taken on Commission involvement in this Dixon-Yates contract have been governed solely by one objective, that is, to permit the Commission to devote its entire time to the development of weapons for the defense of this Nation and to the advancement of peaceful uses of atomic energy.

In response to Congressman Cole's request of last Tuesday, I asked the General Manager that evening to document the time during which Commission personnel have been involved with matters relating to the Dixon-Yates agreement.

Chairman ANDERSON. Would you pause for just a minute while I read from page 120 of the hearings?

Mr. Cole is speaking to you and he said:

> Now, I should like to give you the opportunity, and of course you are not prepared to do it today, of submitting to me or to the committee the time since November 12, or whatever that date was, that the contract was approved or waiver graned by the committee, whether the Commission has considered this subject.

You said:

> Do I understand you to want more statistical information of the number of times the subject was brought before the Commission, and the number of actions that were taken on it since the last time?

Then Mr. Cole said:

> Whatever you are able to furnish which will support your statement that since granting of the waiver by the committee last fall, the Dixon-Yates contract has impaired the operations of the Commission and has been considered by the Commission.

Representative COLE. Mr. Chairman, I did not at the time consider that to be a request of Mr. Murray that he submit that information. The question had been raised with respect to a possible change in viewpoint so I felt in fairness to Mr. Murray that the opportunity should be left available to him to submit it. However, to repeat, I do not think it is a matter of great moment whether the information was requested or not.

Chairman ANDERSON. I am glad that has been cleared up.

Mr. MURRAY. These reports were received late yesterday and are provided to your committee. The time spent since November 11, 1954, amounts to 2,087 hours. I suggest that when you examine these reports you do so with the realization that these statistical data, even though imposing, contribute very little to an understanding of the real impact of this controversy on our primary responsibilities.

Reports summarizing the Commission meetings at which the Dixon-Yates issue was discussed have also been prepared. Before submitting these, I prefer to discuss this with my colleagues.

In addition, this issue arose at a discussion on December 14 between the chairman, Dr. Libby, and myself. During the discussion the chairman for the first time notified me of his intention to hold a Dixon-Yates press conference. I informed him then that I believed such a meeting would be a mistake and not in the best interests of the Commission. On the following day I restated my objections in writing.

The press conference involved the preparation of a 35-page statement as well as detailed charts and drawings. I understand that only part of the time involved in the preparation of this material is included in the 2,087 hours mentioned above.

As for the Commissioners, I can speak in the main only for myself. And I tell you that I have spent many, many hours since November 1954 on this contract. Perhaps I can convey to your committee a better appreciation of the urgent need for removing issues alien to the primary responsibilities of the Commission by citing a specific event which took place while your committee was holding hearings on the Dixon-Yates contract last November. It illustrates in a positive way what I have consistently maintained in spite of continued statements to the contrary; namely, that the Dixon-Yates contract has interfered.

On November 3 and 4, 1954, the General Advisory Committee to the Atomic Energy Commission, with three new members, met in Washington. This committee, as you well know, is established by statute to advise the Commission. It is appointed by the President and meets approximately 5 times a year. The November meeting that I refer to considered, among other things, weapons and reactor developments. Let me quote from the opening statement of the committee's report of that meeting to the Commission dated November 23, 1954:

> We regret that owing to circumstances beyond control most of the members of the Commission and the general manager were unable to attend, which unfortunately greatly detracted from the value of this meeting.

"Circumstances beyond control" in my case was the Dixon-Yates controversy. Security considerations preclude my going into this matter any further at a public hearing. However, further information can be presented to your committee in executive session concern-

ing important matters that I would have discussed with the General Advisory Committee had I not been occupied at that time by Dixon-Yates.

An indication of the pattern for the future is already developing. The very next morning after my statement of last week the Commission held a meeting and considered the Dixon-Yates contract. It considered the contract again on Saturday last. And unless the Commission takes affirmative steps to extricate itself, this contract will continue to be a drain on the Commission's time.

Chairman ANDERSON. Is this statement that you read, "The very next morning after my statement of last week," referring to Wednesday morning?

Mr. MURRAY. Tuesday morning.

Chairman ANDERSON. You made your statement on Tuesday, did you not?

Mr. MURRAY. Monday.

Many statements denying that the Dixon-Yates controversy has impaired our programs fail to consider that the results of the present are based on decisions of the past. It has been emphasized that production of weapons is at an alltime high. I am fully aware of this. But this fortunate situation is the result of programs instituted, not since the Commission became entangled with Dixon-Yates, but prior to that period. The comfort we properly derive from our present tremendous strength in nuclear weapons would not have been possible except for the foresight and decisions of the Commission prior to 1954, particularly in expanding uranium-ore production on a broad front.

What should concern us at this particular juncture is whether the situation will be equally comforting in the years ahead. We should not permit the achievements of the past to deaden our senses to the urgent need for eliminating all impediments to maintaining our world supremacy in nuclear matters.

I share with the Chairman a sense of appreciation of the devoted and valuable service of those in our laboratories and production plants who have contributed so much to this Nation's strength in atomic energy for defense and for peace. In return for these accomplishments of our scientists and engineers neither the Nation nor the Commission can reward them sufficiently. They realize this. But the very least we can give is conclusive evidence that the Commission is devoting its full time to leading them forward and to assisting them in solving their urgent problems, and not problems associated with commercial civilian power needs in the Memphis area.

I share the Chairman's satisfaction in the considerable accomplishments set forth in the Commission's last semiannual report. But it is irrelevant to cite this outstanding report as evidence that the controversy over the Dixon-Yates contract has not impaired our programs and will not do so in the future.

For the most part, these superb accomplishments were not the results of programs instituted during 1954 but were the result of activities initiated prior to the present controversy. These accomplishments include many based on constructive decisions made by our present Chairman and his colleagues during his previous period of service on the Commission.

The Chairman referred to the North Carolina State reactor and Chicago reactor No. 5 as indications that progress had not been retarded by the Dixon-Yates controversy. However, since these reactors were authorized several years prior to Dixon-Yates it is again irrelevant to cite them in this instance.

Let us be grateful for the accomplishments of the past. But, what concerns me today, in February 1955, is whether we will in the future maintain our present position of world leadership in the nuclear field. The attention the Commission today gives to making policy decisions—rather than Dixon-Yates decisions—will determine that issue.

Chairman ANDERSON. Mr. Murray, on page 4 you say:

> The very next morning after my statement of last week the Commission held a meeting and considered the Dixon-Yates contract.

Mr. Strauss was testifying that afternoon and I asked him then:

> I think the chairman will be ready to testify whether he has heard of it in the interim from November to the present time.

Mr. Strauss apparently did not hear the question. He said, "I beg your pardon?"

Then they have Representative Cole saying—I think that is in error, I think I made the observation:

> You have been busy with it. At least you talked to me.

Mr. Strauss says:

> I have been busy. I think since the Commission approved the contract and reported it to the joint committee with a request for a waiver that there have been reports by the General Manager to the Commission of progress in negotiations, but I can recall no discussions in the Commission.

Your statement is that there was discussion that very morning. Could you be mistaken?

Mr. MURRAY. I don't think so. I have referred to the record.

Chairman ANDERSON. Did the record show there was discussion that morning?

Mr. MURRAY. Yes, sir.

Chairman ANDERSON. Do the minutes of the Commission show there was discussion that morning?

Mr. MURRAY. Yes, sir.

Chairman ANDERSON. Have you examined the minutes?

Mr. MURRAY. I have.

Chairman ANDERSON. How do you account for the statement here?

Mr. MURRAY. I think he was getting a lot of questions at the time, and I do not think he realized, and he would not, I am positive, in any way hold that information away from this committee.

Chairman ANDERSON. This is not a slip of the tongue. He says, "I can recall no discussions in the Commission." You say the discussion took place that morning.

Mr. MURRAY. Yes.

Chairman ANDERSON. I do not know whether it is proper to ask you whether you have any minutes with you.

Mr. MURRAY. I have no minutes with me. I would be very reluctant to produce any minutes.

Chairman ANDERSON. Perhaps the best thing is to ask Admiral Strauss if he recalls now since you refreshed his memory if there was

discussion that morning, and then if he does not, we would naturally have to try to subpena the minutes.

Mr. Strauss has released a telegram to Senator Gore dated February 8, reading as follows:

> This is to acknowledge your telegram of February 1 in which you stated by reason of the necessity for comity and cooperation between the Commission and the Joint Committee you are insistent that the Commission record a formal vote upon the recommendation in the resolution of the Joint Committee dated January 28, 1955. Saturday afternoon was the first occasion upon which the Commission had an opportunity to consider both your telegram and the position of the President as publicly stated by him on February 2. The Commission in a meeting at that time resolved by majority vote that it would not now cancel the contract entered into between the Commission and the Mississippi Valley Generating Co.

Were you present on that occasion?

Mr. MURRAY. I was.

Chairman ANDERSON. Was that the action of the Commission as you understood it, that it would not now cancel the contract, or did it have anything to do with the recommendation of the Joint Committee?

Mr. MURRAY. I didn't know that this telegram was sent to Senator Gore. I would rather refer to the minutes myself.

Chairman ANDERSON. Do you have the minutes of the meeting?

Mr. MURRAY. I have not.

Chairman ANDERSON. Are there any questions of Mr. Murray?

Senator HICKENLOOPER. Yes; I have a couple of questions, Mr. Chairman.

I am concerned, Commissioner Murray, about the matter of whether the rest of the work of the Commission has been seriously impeded. I think it is a serious matter. I think it is important to find out. I had not seen this statement before sitting down here just a moment ago.

I notice in your statement there is no breakdown as to the amount of time the Commissioners spent on the Dixon-Yates contract. I notice your statement says the staff generally spent 2,087 hours.

Mr. MURRAY. That is right.

Senator HICKENLOOPER. If you will excuse my slowness here, I am trying to read these attachments at the end of your statement which I did not know were there until I had gone through it.

Chairman ANDERSON. These attachments you did not release to the press.

Mr. MURRAY. Not to the press; no. Those attachments are only for the committee.

Chairman ANDERSON. I think it is perfectly all right to go into them.

Senator HICKENLOOPER. Are they secret?

Chairman ANDERSON. Do you see any reason why he should not go into them if he desires?

Mr. MURRAY. I would rather not. I have no objection. There are statements made by the Assistant General Manager.

Senator HICKENLOOPER. I think there are some very significant statements from the various division people.

Mr. MURRAY. I withdraw my objection.

Senator HICKENLOOPER. If there is any reason——

Mr. MURRAY. There is no security violation liable to occur by releasing them, I can assure you.

Chairman ANDERSON. I would think I would want to rule if a question was put up to me, that since you submitted this to the committee that Senator Hickenlooper would be well within his rights in questioning on them if he wishes to.

Mr. MURRAY. All right.

Representative COLE. I respectfully request that we go further than that and make these attachments to Mr. Murray's statement a part of the record, because presumably his statement is based on the figures and data in these attachments. He has said there is no security aspect involved in the publication of the statements.

Mr. MURRAY. Mr. Cole, my only reason is that certain men in our organization, our Assistant General Manager, have made statements that I didn't feel at this time should be released. But I withdraw any objections I have about that. It is perfectly all right with me after you have read what is there.

Senator HICKENLOOPER. I have just glanced through them. I shan't insist on it if there is some reason why you think at this moment they should not be made public, but I think the figures here are very significant.

Mr. MURRAY. What I did was to take those statements and I added up all the hours that each one of those divisions reported on Dixon-Yates. That is how I arrived at the two-thousand-and-eighty-some-odd figure.

Senator HICKENLOOPER. If I may proceed——

Chairman ANDERSON. I feel, Senator Hickenlooper, you have a perfect right to proceed on those matters unless Mr. Murray at some stage of the questioning says, "I believe security is involved," and you would be as quick as he to want to stop the questioning. I see no reason why you should not proceed.

Senator HICKENLOOPER. Then I turn to the statement of the General Counsel's office, which says from November 11, 1954, to date, the members of this office have spent a total of approximately 354 hours on this contract. He says that this is necessarily an estimate. "However, I believe this to be a reasonable figure." That is the General Counsel's office spending 354 hours?

Mr. MURRAY. That is correct.

Senator HICKENLOOPER. The General Counsel's office does not necessarily pass on decisions of policy of the Commission as to whether programs will be advanced or retarded. The General Counsel's office confines itself to the legal phases of contracts and various other things. Isn't that true?

Mr. MURRAY. In general; yes. There are specific instances where we look to the General Counsel on advice on what we might be able to do in getting ahead with the program. I would just point up something that was discussed here last week. The question was raised whether the Commission should not take the licensing route, and we took another route. As you pointed out very clearly, it was the opinion of the Commission that we should take this other route, and we referred to the General Counsel, could we take that route, and he so advised that we could. Instances like that, the General Counsel does play a point in making Commission decisions.

Senator HICKENLOOPER. The point I was getting at is that the General Counsel's office which has a very substantial number of lawyers in it confines itself to legal advice and things surrounding that phase

of the matters involved in the Commission, so that its devotion of five hundred-some hours to this cause would not necessarily detract from the scientific decisions or the technical decisions which the Commission would be called upon to make?

Mr. MURRAY. I think that is a fair assumption.

Representative COLE. Before he leaves this response, would the Senator yield?

Senator HICKENLOOPER. Yes.

Representative COLE. I would point out that subsequent to November 11, 1954, of course the General Counsel's office was busily engaged in the Dixon-Yates contract with respect to the proceedings before the Securities and Exchange Commission.

Mr. MURRAY. That is correct.

Senator HICKENLOOPER. Turning to the report of Mr. Cook, Deputy General Manager, as I read it here, he says:

> The time involved has average approximately 7 hours a week. My actual time on the job has average better than 50 hours per week. The average time spent on the MVGC contract, including negotiations with the TVA, when deducted from the 50 hours, still leaves me applying more than the normal work week to the normal business of AEC.

The statement of Mr. Cook is that even the time he devoted to the Missouri Valley Electric contract nevertheless he devoted more than the normal time to the regular business of the AEC.

Mr. MURRAY. That is one of the reasons I didn't want that statement read. He is our Deputy General Manager.

Representative COLE. I suggest the Senator read the subsequent paragraph from Mr. Cook, who is the one individual, as I understand it, in the Commission that has had the primary responsibility for negotiating and dealing in this matter.

Mr. MURRAY. He started off having the primary responsibility, but he didn't end up having it.

Senator HICKENLOOPER. I shall read the next paragraph from Mr. Cook's statement:

> To the best of my knowledge, there has been no delay in policy or program decisions resulting from my association with the MVGC contract that has in any way resulted in any delay to the construction, raw materials, production, or weapons programs. Each division director responsible for these programs is thoroughly competent, their Washington and operating organizations are staffed with competent people and the policy or program decisions, once made, are executed by the people responsible for the programs.

Mr. MURRAY. I would just as soon let that statement stand for the record by itself.

Representative COLE. You might as well read the next paragraph, Senator.

Senator HICKENLOOPER. I think as long as we have gone into this that all of these statements should be included in their entirety in the record.

Chairman ANDERSON. Without objection, the series of exhibits at the end of Mr. Murray's statement will be placed in the record. Hearing none, they will be placed in the record.

(The information referred to follows:)

FEBRUARY 7, 1955.

Commissioner Thomas E. Murray.
William Mitchell, General Counsel.

TIME SPENT ON THE DIXON-YATES CONTRACT BY THE OFFICE OF GENERAL COUNSEL

This is in answer to your request that I provide you with a statement of the total amount of time that the Office of General Counsel has spent on the Mississippi Valley Generating Co. contract (the so-called Dixon-Yates contract) since November 11, 1954.

From November 11, 1954, to date, the members of this office have spent a total of approximately 354 hours on this contract. Since we keep no daily diaries of the amounts of time that we spend on various projects, this is necessarily an estimate. However, I believe this to be a reasonably accurate figure.

I have a more detailed breakdown in my files in case you care to have it.

FEBRUARY 4, 1955.

K. D. Nichols, General Manager.
R. W. Cook, Deputy General Manager.

TIME SPENT ON MVGC CONTRACT

This is in response to Mr. Murray's request concerning time I have devoted to the MVGC contract subsequent to its signing on November 11, 1954. There is attached a summary of the time I have applied to the contract and related matters.

The time involved has averaged approximately 7 hours per week. My actual time on the job has averaged better than 50 hours per week. The average time spent on the MVGC contract including negotiations with TVA, when deducted from the 50 hours, stall leaves me applying more than the normal workweek to the normal business of AEC.

To the best of my knowledge, there has been no delay in policy or program decisions resulting from my associations with the MVGC contract that has in any way resulted in any delay to the construction, raw materials, production, or weapons programs. Each division director responsible for these programs is thoroughly competent, their Washington and operating organizations are staffed with competent people, and the policy or program decisions, once made, are executed by the people responsible for the programs.

Since November 13, 1954, the MVGC contract and TVA negotiations have been a second order of priority, and I spend such time as may be necessary on these phases only as my other workload permits.

Summary of time spent on MVGC contract since Nov. 11, 1954

Signing of contract, Nov. 11

	Hours
Joint Committee on Atomic Energy hearings:	
Nov. 11 (holiday)	3½
Nov. 12	7½
Visits to Knoxville (TVA):	
Dec. 16–17	16
Jan. 17–19	20
Visits by Dixon and Canady (3)	2½
Preparation of data for press conference	4
Meetings with Bureau of the Budget:	
Nov. 30, 1954	2
Jan. 8, 1955 (Saturday)	2
Jan. 22, 1955 (Saturday)	4

Meeting with Vogel of TVA, Jan. 15, 1955 (Saturday)	2
Miscellaneous correspondence and questions	6
Meeting with Adams, Jan. 13, 1955	1½
Developing outline for comparison of major power contracts	3
Development of status and analysis of TVA negotiations	3
Miscellaneous telephone calls	2
Development of this tabulation	3
	82

Nov. 11, 1954–Feb. 4, 1955, 12 weeks.

FEBRUARY 4, 1955.

R. W. Cook, Deputy General Manager, Washington.
S. R. Sapirie, Manager, Oak Ridge Operations.

TIME SPENT BY OROO EMPLOYEES ON THE DIXON-YATES CONTRACT SINCE NOVEMBER 11, 1954

In response to your telephone request on February 3, 1955, I have had the attached table prepared showing the approximate number of hours spent by various employees of OROO on the Dixon-Yates contract.

It is difficult to define and assess any detrimental effect on the production program of Oak Ridge operations due to the time spent in connection with the MVGC contract because of the determined effort made by the staff here to minimize such interference. There was, on occasion, a great deal of weekend and nightwork involved. Some pressing matters were handled by others. Less pressing work was at times delayed, but it is estimated that the maximum delay was 1 week and in the majority of cases less. There was, of course, no delay in actual production.

S. R. SAPIRIE.

Hours by ORO employees on Dixon-Yates contract since Nov. 11, 1954

Name	Engineering and technical matters	Conferences in AEC on contract administration	Discussions with D-Y on contract administration	Negotiations with TVA	Preparing for TVA negotiations	Total
S. R. Sapirie	1	11	4	32	7	55
J. F. Hennessey		18		32	15	65
I. L. Lind	20	52	16	32	52	172
M. W. Smedberg	2	224	16			242
R. J. Brown	1	7				8
C. G. Sonnen	12	4				16
R. B. Somers	2	13				15
A. R. Sutliff	8					8
H. L. McCracken	12					12
W. J. Hayes		16				16
E. L. Weathers		40				40
L. D. MacKay		6				6
T. F. Thulstrup		6				6
L. B. Stacey		50	16			66
J. R. Moore		4				4
Total	58	451	52	96	74	731

FEBRUARY 5, 1955.

R. W. Cook, Acting Assistant General Manager for Manufacturing.
E. J. Bloch, Director of Production.

TIME SPENT ON MVG CONTRACT

Reference is made to your request for an estimate of the time I have spent on matters relating to the MVG contract since November 11, 1954. In accordance with our arrangements, I have spent very little time on this contract and the Production Division staff assigned to the matter has, for the most part, worked directly with you and the General Manager.

About the only participation on my part since November 11 has been reviewing replies to miscellaneous correspondence which the Division has received, arrang-

ing for the assignment of the contract to Oak Ridge for administration by instructions dated November 18, 1954, and arranging for and reviewing the semimonthly progress reports to the Joint Committee on Atomic Energy. My best estimate is that these miscellaneous matters have occupied my time to the extent of 1 or 2 hours a week, or an aggregate of about 20 hours at the most, since November 11. In addition, I have spent several evenings at home reading the contract and other related documents.

With respect to the Production Division staff, we estimate that about 96 man-days have been expended on MVG contract since November 11. Since there have been 58 working days during the period, the 96 man-days is equivalent to 1.7 men, full time.

The primary assignment of two of the employees involved is electric power and other utility problems. Two other employees spend some time on power matters as part of their normal duties. It is my judgment that neither the production program nor the work of the Production Division has been adversely affected by the staff effort on MVG during this period. With 33 employees in the Division (exclusive of stenographic and clerical help), a workload of this magnitude can be absorbed.

PRODUCTION DIVISION

Time spent on Dixon-Yates contract (man-days) from Nov. 11, 1954, to Feb. 3, 1955

	Col. A General power activities [1]	Col. B Dixon-Yates [2]
Huard	10	
Labowitz	4	
Meyer	16	32
Overtime		7
Thaxton	25	5
Blue	10	
Eskildson	19	19
Overtime		3
Drafting (Favale's unit in C. & S.)		9
Total direct		75
Indirect (84×¼=21)	84	21
Total		96

[1] Excludes the time spent on power portions of fiscal year 1955 midyear review and fiscal year 1956 budget since MVGC contract is not involved.
[2] Includes time spent on TVA negotiations and preparations therefor.

FEBRUARY 3, 1955.

K. D. Nichols, General Manager.
Don S. Burrows, Controller.

STAFF TIME SPENT ON MVGC CONTRACT SINCE NOVEMBER 11, 1954

Various members of the finance staff, including myself, have spent time intermittently since November 11 in discussions with staff, review of papers, or the preparation of certain supporting data. No records have been maintained on the amount of such efforts, but I have obtained from each individual concerned, his best estimate of the probable total time engaged. The times shown below do not represent consecutive efforts but the best estimate of the probable time spent during the period.

	Man-hours		*Man-hours*
Don S. Burrows	8	Reports and Statistical Branch	4
Walker E. Campbell	6	Audit Branch	10
Wm. J. Pollock	32	Total	72
R. B. Stuart	2		
Orton Boyd	10		

K. D. Nichols, General Manager.
Harry S. Traynor.

TIME SPENT ON DIXON-YATES

The following are estimates of time spent, since signing of the Dixon-Yates contract, on Dixon-Yates matters by myself and directors and staff of divisions whose activities I coordinate:

	Man-hours
Division of Information Services:	
Morse Salisbury	6
Staff	50
Division of Intelligence:	
C. H. Reichardt	0
Staff	0
Division of Classification:	
C. D. Luke	0
Staff	0
Division of Source and Special Nuclear Materials Accountancy:	
D. Musser	0
Staff	0
Division of Organization and Personnel:	
O. Smith	0
Staff	0
Division of Security:	
J. Waters [1]	-----
C. A. Rolander	0
Staff	3
Assistant General Manager:	
H. S. Traynor	1

[1] Captain Waters will not return from abroad until the end of this week. However, Mr. Rolander states that he believes Captain Waters has not spent any time on the Dixon-Yates matter.

Senator HICKENLOOPER. At Mr. Cole's suggestion, I will read the final paragraph:

Since November 13, 1954, the MVGC contract and the TVA negotiations have been a second order of priority and I spend such time as may be necessary on these phases only as my other workload permits.

Chairman ANDERSON. Along that same line of reason, Senator, would it not be possible for a man to say that his regular workday ought to be 8 hours, but he is actually spending 9 hours working on his Senate duties, and then he is out playing pitch for 8 or 10 hours a night, so since he put in a full day's work, it did not make any difference. If that interfered with Mr. Cooks' activities, it could be a cause of some trouble. I do not think it has been but it could be.

Senator HICKENLOOPER. I am merely canvassing this from the standpoint of testing whether there has been any actual cessation or slowing down of the normal responsibilities and operations of the Commission. I do not think you confine yourself to any 8 hours.

Chairman ANDERSON. I am sure I do not, and neither do you.

Senator HICKENLOOPER. The Senator works long, early and late. Here is a letter from Mr. S. R. Sapiri, Manager of the Oak Ridge operations. His first paragraph is an acknowledgment of the request for the time estimate, but in his second paragraph and final paragraph of the letter, he says:

It is difficult to define and assess any detrimental effect on the production program of Oak Ridge operations due to the time spent in connection with the MVGC contract, because of the determined effort made by the staff here to minimize such interference. There was, on occasion, a great deal of weekend and nightwork involved. Some pressing matters were handled by others. Less pressing work was at time delayed, but it is estimated that the maximum delay was 1 week, and in the majority of cases less. There was, of course, no delay in actual production.

Then in the letter from Mr. E. J. Bloch, Director of Production, in response to the request for the breakdown. He says in the next to the last sentence in the second paragraph of that letter:

My best estimate is that these miscellaneous matters have occupied my time to the extent of 1 or 2 hours a week, or an aggregate of about 20 hours at the most, since November 11. In addition, I have spent several evenings at home reading the contract and other related documents.

Then the next paragraph:

With respect to the Production Division staff, we estimate that about 96 man-days have been expended on MVGC contract since November 11, since there have been 58 working days during the period, the 96 man-days is equivalent to 1.7 men full time.

Then the next paragraph:

The primary assignment of two of the employees involved is electric power and other utility problems. Two other employees spend some time on power matters as a part of their normal duties. It is my judgment that neither the production program nor the work of the Production Division has been adversely affected by the staff effort on MVG during this period. With 33 employees in the Division (exclusive of stenographic and clerical help), a workload of this magnitude can be absorbed.

Mr. Don S. Burrows, comptroller, writes as follows:

Various members of the finance staff, including myself, have spent time intermittently since November 11 in discussions with staff, review of papers, or the preparation of certain supporting data. No records have been maintained on the amount of such efforts, but I have obtained from each individual concerned his best estimate of the probable total time engaged. The time shown below do not represent consecutive efforts but the best estimate of the probable time spent during the period.

Then he shows 1 man, Mr. Burrows, 8 hours; Mr. Campbell, 6 hours; Mr. Pollock, 32 hours; Mr. Stuart, 2 hours; Mr. Boyd, 10 hours; reports and statistics branch, 4 hours; audit branch, 10 hours, or a total of 72 hours.

Then the letter from Harry S. Traynor, who is Assistant General Manager. He sets up the following man-hours:

The Division of Information Services; Morse Salisbury, 6 hours; staff, 50 hours.
Division of Intelligence, none.
Division of Classification, none.
Division of Source and Special Nuclear Materials, Accountancy, none.
Division of Organization and Personnel, none
Division of Security, the staff spent 3 hours.
Assistant General Manager, Mr. Traynor, 1 hour.

The Atomic Energy Commission employs some five to six thousand people, does it not, Mr. Murray?

Mr. MURRAY. I think that is about the right figure.

Senator HICKENLOOPER. I do not want to ask you to answer questions involving security matters, of course, but I do not know that I can agree that the statements of these people would necessarily indicate any blocking or frustration of the overall atomic energy program. I am perfectly aware that it has taken time. But I would want to get back to your reasoning on the matter of saying that you approved the execution of this contract when it was finally executed.

May I say, and I want to say it publicly to you here, sir, that some of the suggestions which you insisted on and stood for in this contract were beneficial to the United States in the execution of this contract. I congratulate you for certain of the positions which you took.

Mr. MURRAY. Thank you very much, Senator.

Senator HICKENLOOPER. But I fail to follow sincerely—and I say this sincerely—your reasoning as to why you approved the execution of the contract and recommended that it be gone through with at the time of the hearings finally when it had been rearranged, if I may use that term, to your satisfaction, and now you take the position that the Commission should cancel or terminate the contract. That is the only thing that bothers me about this discussion.

Mr. MURRAY. I recognize that maybe it should bother you, if you have not read in detail and gone through all of the various statements that I have made on this subject. I do not know whether you were present, Senator, at the time that I recommended that this contract, back in November, was in the public interest. I said that it had been absorbing a lot of our time, we had been going back and forth on it. It was one of these things that I thought we ought to get out of the way. I made this statement on November 11:

> It is my earnest hope that this action will free the Commissioners and their staff from the protracted deliberations of almost a year which have preempted so much of their time. The execution of this contract should permit the Atomic Energy Commission once again to devote its entire energies to its primary responsibilities.

That was my reasoning at the time. I stated previously that I didn't like the contract, that we had no interest in this contract, that it was erecting a plant hundreds of miles away and so on.

Senator HICKENLOOPER. When you say you didn't like the contract, maybe you ought to let the record stand that way, but I think you agreed the contract was a good contract in the interest of the Government, according to its terms as it was finally submitted.

Mr. MURRAY. I never said that. I did the best job I could on trading and getting the best provisions in that contract that I could. I thought I went as far as I could go.

Senator HICKENLOOPER. This contract was in many ways patterned after the Paducah and the Portsmouth contracts, was it not? Those were prototypes in a way for, let us say, the formulation of the contract. Whether it should have been made for the Memphis area or not is beside the point.

Mr. MURRAY. I don't think it is beside the point. That is just it. The EEI contracts were entered into to supply a definite need for a definite location for a specific purpose to produce so much material to make weapons. We had that need and we had that urgent need. We could not wait for private industry or anybody else to come along and develop the area. We had to meet a production need. So we had to have so many kilowatts of energy at that particular location.

The OVEC contract is exactly the same. We have a definite need at Portsmouth for 2 million kilowatts of electricity to meet a definite DOD need.

Senator HICKENLOOPER. I did not make myself clear, then, I guess.

Mr. MURRAY. To say that this is the same pattern, it only resembles the same pattern as far as organizing and getting companies together to combine their resources to supply a need for electricity. That is the pattern.

Senator HICKENLOOPER. And the terms under which the electricity is generally fixed in price and so on did have a prototype in the OVEC and EEI contracts.

Mr. MURRAY. Yes, sir.

Senator HICKENLOOPER. That is what I was trying to say. I was trying to divorce the theory of whether the Commission should go into the Memphis area and provide electricity. I was trying to lead it down to the point of just the contract itself, as a four-corner document.

Senator PASTORE. Will the Senator yield for a question on that point?

Senator HICKENLOOPER. Yes.

Senator PASTORE. Even though the terms of the contract were the same in pattern, the fact of the matter remains that the circumstances were entirely different.

Mr. MURRAY. Of course.

Senator PASTORE. If we were willing to yield certain generous concessions in the EEI and OVEC contract only because we needed that power immediately and it was to be furnished directly to the atomic plants, the fact of the matter was that in this last contract we had no similar circumstances to yield as much as we actually did.

Mr. MURRAY. I think that is correct, Senator.

Senator HICKENLOOPER. Is it not the fact that the Atomic Energy Commission could have moved in and demanded all the power that TVA could furnish there, but elected to take the OVEC and EEI route?

Mr. MURRAY. That is a new angle that I would have to refer again to the counsel. I don't know whether we had the right to go in and take all the TVA power that was in that area in order to operate our plants.

Senator HICKENLOOPER. I am going only on what I recall the testimony to be.

Mr. MURRAY. There was some testimony.

Senator HICKENLOOPER. That AEC has prior call.

Mr. MURRAY. That is what I understood or we had been advised by counsel that we may have a prior call on the TVA resources.

Senator HICKENLOOPER. When we had the hearing last November and December, certainly you were aware that if the contract were executed that it would require supervision on the part of the AEC.

Mr. MURRAY. I was asked that question and my solution to getting rid of that supervision was to make some arrangement if this contract kept on going over to TVA to administer. I stated at that time I would like to get rid of the administration of this contract and suggested that route.

Senator HICKENLOOPER. Let me ask you this, Mr. Murray. Because you have not participated in the presentation of the Commission on the various phases of its presentation the last several days, are you in disagreement with those presentations?

Mr. MURRAY. No, sir.

Chairman ANDERSON. That has suggested something to me that I wanted to ask at some time and maybe this is as good a time as any. You did not make any presentations. The chairman did, Dr. Libby did, General Nichols did, Mr. Mitchell did. Did you ask to be excused from making presentations?

Mr. MURRAY. Wait a minute. Let me recall. I think I was asked a week or so before, would I be willing to read certain portions of the documents, and we would split up that so Dr. Libby would read

portions of it, and I would read some other portions and so on. I suggested that the heads of the divisions and the men who prepared those statements because they were very rapidly and hurriedly prepared, should read those statements because I thought it was proper for them to answer the questions.

Chairman ANDERSON. I was curious as to why you had not done it.

Mr. MURRAY. The policy is outlined, particularly in regard to the peaceful uses of atomic energy. I am in perfect accord with it. I don't know whether you agree, Senator Anderson—you don't in some of the approaches——

Chairman ANDERSON. I think it is important to know that you do subscribe to these things.

Mr. MURRAY. I do subscribe wholeheartedly.

Senator HICKENLOOPER. I think very frankly that there was some wonder raised in the minds of some of the committee members because Dr. Libby presented a part of it and the chairman presented a part of it, and others, and you did not participate. I am glad to hear you say you are not in disagreement with the formal presentations made on the part of the Commission.

Mr. MURRAY. I am glad you asked me that question to straighten out the record on it.

Senator HICKENLOOPER. I think it is only fair to straighten it out. I think that is all.

Chairman ANDERSON. Mr. COLE.

Representative COLE. I have no questions.

Chairman ANDERSON. Senator Gore.

Senator HICKENLOOPER. May I just ask one question.

I wonder, Mr. Murray, if it is possible for us to get a record to the committee as to the total number of hours, with as much breakdown as possible, which the Commission itself has spent——

Mr. MURRAY. As a body in meetings or individually? I can only report for myself.

Senator HICKENLOOPER. In meetings.

Mr. MURRAY. In meetings I can get that statement.

(The information referred to will be found on p. 375.)

Senator HICKENLOOPER. And also whether the General Advisory Committee has devoted any time from its other duties to the Dixon-Yates contract, and if so, how much.

Mr. MURRAY. I think the answer to that as far as I know is "No."

Senator HICKENLOOPER. Thank you.

Senator GORE. Mr. Murray, I would like to pursue a little further the questions which Senator Hickenlooper has just continued which he raised earlier. You said you could only reply as to yourself. You have not replied. As I understand it in the 2,087 hours, you have not included any of the time spent by the Commissioners individually or collectively.

Mr. MURRAY. That is correct.

Senator GORE. Are you prepared now to give some indications as to the drain on your own time which this controversy has occasioned?

Mr. MURRAY. I think it would be very difficult for me to tell you how many hours I have spent on the Dixon-Yates contract. Maybe I can ask you the question, how could you answer a question like that? You mean in my waking hours, and my thinking about it or writing papers or my meeting people about it, and answering tele-

phone calls and reporters, and all that sort of business. I have tried to sum it up the best I could, that I have spent many, many hours. I would be willing to sit down and go over my diary and try to reconstruct the whole picture for you if that would be helpful.

Senator GORE. I notice on page 2 you say that these statistics which you have given contribute very little to the understanding of the real impact of this controversy on your primary responsibilities. You were asked—if not asked, you were invited to submit statistics. You have submitted statistics since November 11 as to the staff.

Mr. MURRAY. I forgot to say the General Manager's time is not included here, and I am expecting to get that report.

Senator GORE. Then the time spent or the interference with the General Manager is not included in these statistics. You have now been invited to furnish statistics as to the Commission members. But I come back to this statement in which you say that the statistics contribute very little to an understanding of the real impact.

I do not wish to press you, but the question has been raised here, Can you give to the committee now some index as to the interference with your own responsibilities as a Commissioner by this controversy?

Mr. MURRAY. I can bring you back to this morning. There was a Commission meeting held this morning which I could not attend; because I could not attend the Commission meeting was adjourned to a later time.

Senator GORE. Why could you not attend?

Mr. MURRAY. Because I was trying to analyze these statistics that were handed to me last evening.

Senator GORE. In other words, you were busy on the Dixon-Yates contract.

Mr. MURRAY. I was busy on the Dixon-Yates contract. That is just this morning. I don't want to give you the impression, and I don't want to leave anyone with the impression that I can sit here and tell you exactly how much this particular controversy has interfered. I have tried to make as clear as I could to Mr. Cole that I don't believe any statistics of this nature gives you any appreciation of how this controversy interferes with the operation of the Commission. It is a very difficult thing to get hold of.

You can build up statistics. The thing just occurs to me that years ago my father used to say there were three kinds of lies: lies, damn lies, and statistics. You can prove almost anything one way or another by statistics in my experience with statistics.

Senator GORE. Has it interfered with your primary functions as a member of the Atomic Energy Commission?

Mr. MURRAY. I can definitely state it has. I can go back as I say and I can build up in the past year my diary for you and outline the various people I have talked to and the telephone calls, and that leads to something else, one question to another, and it drags on from one thing to another. That is primarily why we must get rid of this contract. We just can't go on as we are now being dragged in to answer this question and that question when there are so many, many more important questions to be answered.

I gave you an illustration here of the General Advisory Committee. I could not attend that meeting. I would like if the opportunity presents itself to tell you two of the things that I wanted to take up

with the General Advisory Committee. I was delayed from doing so until practically 2 months later.

Senator GORE. May I inquire if those matters which you were prevented from discussing with the General Advisory Committee were of a security nature? Did they involve the weapons program?

Mr. MURRAY. They did.

Senator GORE. Then you have cited today one meeting of the Commission had to adjourn without a quorum because you were bogged down with the Dixon-Yates controversy.

Mr. MURRAY. That is right.

Senator GORE. You have cited a meeting of the General Advisory Committee which you were prevented from attending and discussing the weapons program. Can you think of other specific instances? What about your evenings? General Nichols has cited that he has spent one-seventh of his office hours since November 11—or approximately so—I believe he said an average of 7 hours a week in a workweek of approximately 50 hours——

Mr. MURRAY. That is Mr. Cook.

Senator GORE. I appreciate the correction. Would you give some indication as to whether or not you as a Commissioner have been confronted with this problem after you leave the office?

Mr. MURRAY. Many, many times. With all due respect to the reporters present, I have been awakened from sound sleep at 11 o'clock at night and asked questions about the Dixon-Yates contract. I am not a personality that can cut on and off sleep like you can a water faucet.

Chairman ANDERSON. You should not go to bed so early.

Mr. MURRAY. I am known for my early-to-bed policy. Maybe in the future I might follow your suggestion, Senator.

Chairman ANDERSON. Are there any other questions?

Senator GORE. Yes; there are a few more.

You have cited one meeting of the Commission this morning. Mr. Strauss has referred to another meeting last Saturday. You have referred to another meeting last Tuesday. Was the Dixon-Yates contract a subject of discussion at each of those three meetings?

Mr. MURRAY. If you refer to page 4, I just want the record clear. I said:

> The next morning after my statement last week the Commission held a meeting and considered the Dixon-Yates contract.

Senator GORE. I want to come back to that in just a moment. Was there a meeting of the Commission between Tuesday and Saturday?

Mr. MURRAY. Not between Tuesday and Saturday. There was one Tuesday morning, and there was one Saturday noon.

Senator GORE. And then this morning?

Mr. MURRAY. Not a Commission meeting that I attended. There was a Commission meeting this morning but it had to be canceled because I could not attend.

Senator GORE. Those statistics, if we are going to rely on statistics, are rather revealing. You had three called meetings of the Commission within a week. During two of those meetings Dixon-Yates was the subject of discussion, and for the third an adjournment was necessary because you were bogged down preparing the statement.

Mr. MURRAY. There was nothing this morning on the Dixon-Yates, but I can't imagine having a meeting of our Commission from this point forward that Dixon-Yates is not discussed.

Senator GORE. I want to come back to this meeting of last Tuesday. On Tuesday afternoon, Mr. Strauss was unable to remember. Was there a vote then? Was there any action taken? Mr. Strauss has told us that on Saturday a vote was taken. Was there a vote taken on Tuesday?

Mr. MURRAY. I don't want to refuse to answer your question, but I think the committee, as far as our minutes are concerned and what take place at our meeting, ought to ask for those records if they want them.

Senator GORE. Mr. Chairman, I do not wish to press the point, but Mr. Strauss has written a letter which he has released to the press in which he reveals the action of the Commission by vote on Saturday. I do not wish to press here, but if a vote was taken on Tuesday, obviously the committee is entitled to know it. Whether it is supplied by the minutes or by Mr. Murray or Mr. Strauss, I will leave it to the chairman to say.

Chairman ANDERSON. Let me see if I can clear it up. Actually, on Tuesday no vote was reached. You made a motion, did you not?

Mr. MURRAY. Yes, sir.

Chairman ANDERSON. And it died.

Mr. MURRAY. Yes, sir.

Senator GORE. Was a vote taken on it?

Representative PRICE. Mr. Chairman, how did it die?

Chairman ANDERSON. We will get the others here. Do you recall whether Mr. Strauss or Dr. Libby voted on your motion?

Mr. MURRAY. I think they both refrained from voting.

Senator GORE. Then there was a vote.

Mr. MURRAY. You got me to admit that there was.

Senator HICKENLOOPER. Do you want to clear that up? You said there was a vote.

Mr. MURRAY. I moved that the Commission should take steps to rid itself of the Dixon-Yates contract. That was my motion on Tuesday.

Senator GORE. According to your statement you voted for it and the other two Commissioners abstained?

Mr. MURRAY. That is my recollection.

Senator HICKENLOOPER. Was the question put?

Chairman ANDERSON. Let us see now. Admiral Strauss is Chairman of the Commission. All you could do is make the motion; is that not correct?

Mr. MURRAY. Yes, sir.

Chairman ANDERSON. It died for want of a second, and it was not put. Is that a correct statement?

Mr. MURRAY. I think the minutes will speak for themselves.

Chairman ANDERSON. You would rather the minutes be introduced?

Mr. MURRAY. Yes, sir.

Senator GORE. I must say that it is rather remarkable that a discussion was had, a motion made, a vote taken, and yet that very afternoon Mr. Strauss could not recall it. I don't ask you to comment on that. I find it remarkably strange.

Mr. MURRAY. I would like to comment on it. I don't think he maybe realized the import of the question that was being asked him. I do not believe that he would in any way keep the information of that nature from this committee. There is nothing that has ever indicated anything in the past that he would ever do a thing like that. I am sorry he is not here to speak for himself on that.

Chairman ANDERSON. That is why I tried to ask the question. I hope I asked the question in an intelligent fashion so he could answer it, because I had been informed by newspapermen that matter had come up that morning, and I was surprised at his statement. We decided not to press it at that time, and probably should not press it now.

Senator HICKENLOOPER. Mr. Chairman, in order to clear this, I wonder if there was any objective discussion of the Dixon-Yates contract or was merely a motion made and it died and no particular discussion of the contract occurred.

Mr. MURRAY. Again, Senator, I think we should see the minutes.

Senator GORE. Mr. Chairman, I do not wish to indict Admiral Strauss at this point, but I do specifically recall that you as chairman undertook to make the question plain at that point. I think Admiral Strauss should be allowed to answer for himself. I think also the minutes should be presented. But I must say that it is a remarkable slip of the memory in my opinion.

I would like to read from page 124 of the hearings. The chairman asked:

> Would you inform us, then, if the Dixon-Yates contract has been the subject of any discussion by the Commission since this waiver was granted?
>
> Mr. STRAUSS. I said, Mr. Chairman, that I could recall no such discussion, but I am not in a position to say that the opinions may not reveal it—

that must be minutes—

> I will be glad to have them searched, and report to you at the next session of this committee.

I was present at the next session of the committee, but I did not hear this question mentioned.

> Chairman ANDERSON. You would not know when the last time was that the Dixon-Yates contract was discussed by the Commission?

And I remember you emphasized that question.

> Mr. STRAUSS. I am sure that the General Manager, at numerous meetings of the Commission, has reported on the progress, but I can recall no subject of discussion because I can recall no issue that has intervened.

Chairman ANDERSON. I asked the question because I knew there had been a motion made at that morning's session, and I was hopeful that I might get a response to that question.

Senator GORE. Your statistics which you have now supplemented by some estimate of the drain on your own time apply only to the period since November 11.

Mr. MURRAY. That is correct.

Senator GORE. The Dixon-Yates deal has been on since December of 1953, according to the record.

Mr. MURRAY. That is as I understand it.

Senator GORE. Would you be prepared to give us no statistics—I take it you would not be prepared to give statistics at this moment over that 11-month period—would you be prepared to give some indi-

cation as to the interference with the Commission program during that period prior to November 11?

Mr. MURRAY. In the early period, the beginning, not negotiations but exploration, may I say, of the Dixon-Yates contract, it was not told to me. I found out, as I think I stated at the previous hearing, that these explorations were going on from a call from a newspaperman, asking me did I know anything about it. That alerted me to the situation, and then I at that time started to inquire and ask some questions about it.

Senator GORE. Did you learn at that time that the chairman had spent some time on the Dixon-Yates controversy before you did know about it?

Mr. MURRAY. I think that is in our record here.

Senator GORE. I should not have interrupted you.

Mr. MURRAY. But subsequent to that time, I did not take very much of an interest in the Dixon-Yates contract for many months. The negotiations were carried on at the beginning by our Assistant General Manager, Mr. Williams, and then carried on by Mr. Cook and others. I think the record is all clear on that. I dont' know how many meetings we had to discuss various phases of the situation prior to November of last year. But those records are available, and the statistics.

Senator GORE. It may be that we will need statistics for the year preceding November 1954. I notice on page 3 of your statement, you say:

> I can tell you that I have spent many, many hours since November 1954 on this contract.

Will you make the same statement with respect to the period before November 1954?

Mr. MURRAY. Yes, I can.

Senator GORE. I notice you say at another point—on page 3—you refer to the 35-page document that was released as a press statement by the Chairman. You say:

> I understand that only part of the time involved in the preparation of this material is included in the 2,087 hours mentioned above.

Did any part of the Chairman's time in preparing that 35-page statement go into the calculation of 2,087 hours?

Mr. MURRAY. No, sir. This 2,087 hours is documented by the papers you have before you.

Senator GORE. Did it include the hours and the money paid to the artist who drew the designs and the sketches which were displayed in the room at the time of the press conference?

Mr. MURRAY. I understand that those artist drawings and displays were all prepared by our staff, that is, the Atomic Energy Commission staff.

Senator GORE. Would you know whether or not they are included in this?

Mr. MURRAY. I inquired this morning about that, and was told that the 35-page document was supposed to have been prepared by Mr. Strauss' assistant.

Senator GORE. And the time his assistant spent on it is not included in the 2,087 hours?

Mr. MURRAY. As far as I know, it is not.

Senator GORE. Then your statistics, impressive as they are, do not reveal—to use your own words—

contribute very little to the understanding of the real impact of this controversy on our primary responsibilities.

I cannot improve on your own language. Do you know how much time the legal staff and the General Manager spent on the terms of the 10 drafts of the contract before November?

Mr. MURRAY. I have no statistics on that, but they are available if the committee wants them.

Representative HOLIFIELD. I would estimate that I spent thirty or forty 8-hour days analyzing that contract myself. Of course, I am not as skilled an attorney as Mr. Mitchell and Mr. Price. They could probably spend less time on it. I note that there were 9 or 10 versions of this contract. In our hearings there are 41 pages of the contract, and the appendix and the memorandum of understanding of the terms, and so forth, in 8-point type. I would say that this job of constant revision of these contracts must have been quite a legal task for the General Counsel down there, and his people. I would also say that the time of the Commission in appearing before our committee on the Dixon-Yates contract during the consideration of the bill and the 9 days, most of which they were either testifying or present during the hearings last November, is also not included in the 2,000 hours.

Mr. MURRAY. The 2,000 hours only go back to November 11, 1954.

Representative HOLIFIELD. It is not a complete inclusion of the time of the members of the Atomic Energy Commission staff because you testified that it does not include the legal staff.

Mr. MURRAY. I beg your pardon, Mr. Holifield. It does include the legal staff.

Representative HOLIFIELD. Since November?

Mr. MURRAY. Yes.

Representative HOLIFIELD. But not before that.

Mr. MURRAY. No.

Representative HOLIFIELD. Not for the year's work before that.

Mr. MURRAY. I did not go prior to that in this.

Senator GORE. As I understand, then, it was since November.

Mr. MURRAY. That is right.

Senator GORE. I notice on page 2 of your report you say:

Reports summarizing the Commission meetings at which the Dixon-Yates issue was discussed have also been prepared. Before submitting these, I prefer to discuss this with my colleagues.

Mr. MURRAY. There were not very many of them. I did not want to attach any of those meetings to this statement, because I think the Commission as a whole should decide whether or not our minutes should be disclosed. I gave you an indication. There were very few meetings.

Senator GORE. As I understood the chairman a few moments ago, he requested that the minutes of the meetings be supplied to the committee. In that case, this information would be supplied.

Just one other question, and I shall desist.

The chairman's letter to me today—it was delivered to me in the form of a letter this morning—states:

> Saturday afternoon was the first occasion upon which the Commission had an opportunity to consider both your telegram and the position of the President as publicly stated by him on February 2.

He did not in his letter reveal the Tuesday meeting, but couples the consideration of both my request and the President's press statement. The President's press statement came in the period between Tuesday and Saturday.

If there is any implication there that legal weight is being given to a statement at a press conference, I respectfully suggest that the law vests responsibility for management functions of the Atomic Energy Commission in the Commission.

Thank you, Mr. Chairman.

Chairman ANDERSON. Mr. Cole.

Representative COLE. Mr. Chairman, I would also point out that there is nothing in the law imposing responsibilities on the Commission which could be construed as requiring the Commission to respond immediately to a request from any Member of Congress, no matter who it may be.

The inference has been created here that Mr. Strauss either by design or innocently made certain misrepresentations to the committee with respect to the latest time when the Dixon-Yates matter had been considered by the Commission. It has been indicated that on the morning of the very day when he denied that the Commission had considered the matter recently, that the Commission had a meeting on it.

Senator HICKENLOOPER. If you will yield, I think the word was "discussed."

Representative COLE. That the Commission had discussed the subject matter. I do not know anything about it, but from what I have heard said this afternoon, I think you would find that the meeting of the Commission at which Dixon-Yates was discussed had occurred on the morning following the date when Mr. Strauss made that statement. Mr. Murray is in a position to corroborate or dispute that.

Mr. MURRAY. Mr. Cole, I testified on Monday. Mr. Strauss read his statement and testified on Tuesday. You have alerted me to something here that should be corrected. We did not have a meeting the morning that I testified.

Representative COLE. That is right. The meeting at which the Commission discussed Dixon-Yates was the following morning.

Mr. MURRAY. Yes.

Representative COLE. Which was also the morning following the time on which Mr. Strauss had said that the Commission had not discussed the subject recently.

Chairman ANDERSON. No.

Mr. MURRAY. No.

Chairman ANDERSON. It was the very afternoon of the day they had the meeting, because the newspapermen came to me and told me they had the meeting that morning.

Representative COLE. What is the date of the Tuesday you are speaking of?

Mr. MURRAY. The Tuesday would have been the 1st.

Representative COLE. It was the 1st of February, which the transcript of the hearings indicates that Mr. Strauss made the statement that the Commission had not met.

Mr. MURRAY. We met that morning. We met February 1.

Representative COLE. But the statement to which you have referred occurred on that same day. You said the next morning you went back to the office.

Mr. MURRAY. No.

Representative COLE. It all depends on which you are talking about. You made two statements, Monday and Tuesday. At any rate, that is not too important.

Mr. MURRAY. I am reading from the bottom of page 4 of my statement today:

> An indication of the pattern for the future is already developing. The very next morning after my statement of last week the Commission held a meeting and considered the Dixon-Yates contract.

Representative COLE. The records can verify it. I simply want to say on my own responsibility that I am confident that Mr. Strauss did not undertake either deliberately or by design to mislead this committee.

Mr. MURRAY. I tried to say the same thing, but you have said it so much better, Mr. Cole.

Representative COLE. I do not charge that you have tried to create that inference on the part of the Chairman of the Commission. But the inference has been raised by certain interrogations that have occurred here from the joint committee.

Senator GORE. Will the Congressman yield?

Representative COLE. Surely.

Senator GORE. I do not know what the Congressman means by inference. So far as I know, the record has been cited. I am perfectly willing for Mr. Strauss to give his own explanation. But the record is now before the committee and the public.

Representative COLE. You have reported to us the results of the survey that was made at your request of the time spent by staff people of the Commission in this matter since November 11. I note that the résumé you have submitted in your supporting papers does not include certain other divisions of the Commission's activities. Probably one of the most important is the Division of Military Application. Have you had a reply or response from that Division?

Mr. MURRAY. I have. They spent no time whatever on it.

Representative COLE. They spent no time?

Mr. MURRAY. No time.

Representative COLE. Why was that not included in your recapitulation of the survey?

Mr. MURRAY. I am sorry. It should have been. I just got these this morning. They have been photostated and evidently because they indicated no time they were not included.

Representative COLE. There were four divisions which you did cite which had zeroes after them.

Mr. MURRAY. No.

Representative COLE. The Division of Intelligence, the Division of Classification——

Mr. MURRAY. They were included in an overall statement under Mr. Traynor's report. He sent in a general report covering the Division of Intelligence, Classification, and so on. I suppose the reason any office included those was because on that one document were listed some hours. I can tell you very frankly that there was a report. I will be very glad to supply it to you. It was from General Fields, stating that his office spent no hours on the Dixon-Yates contract.

Representative COLE. I jotted down a number of other divisions which have come to my mind which I do not see responses in your statement. The Division of Research and Development. What was their response?

Mr. MURRAY. They spent no time. Biology and Medicine spent no time.

Representative COLE. And the Division of Reactor Development?

Mr. MURRAY. Reactor Development spent no time.

Representative COLE. Isn't there a division of administration or housekeeping, of some kind, or is that one which you have characterized as organization?

Mr. MURRAY. I would say that is included in Mr. Traynor's report, organization and personnel.

Representative COLE. On production, that Division indicated that it spent 1.7 men on this project. With respect to the OVEC contract and EEI contract, after they were made by the Commission, was it not necessary for a considerable number of personnel in the Commission to engage themselves in matters pertaining to those contracts?

Mr. MURRAY. I haven't any idea of the amount of time that our staff spent in the administration of the OVEC and EEI contracts.

Representative COLE. But you will agree that it was necessary.

Mr. MURRAY. Yes. I would add that I should have spent a little more time on the EEI contract after it was made.

Representative COLE. Let us not get into what I think you have in mind. I want to avoid that if possible. At any rate, you will agree that inevitably after a contract is made by the Commission, whether it is a good contract or whether it is not, it is necessary for personnel of the Commission to devote themselves to carrying out the terms of that contract.

Mr. MURRAY. That is understood.

Representative COLE. Do you think it would be unreasonable to say with respect to the OVEC contract, for instance, as many as six people might be devoted to seeing that that contract is implemented?

Mr. MURRAY. As many as 2,000 hours of our staff in a few months.

Representative COLE. I am talking about six people. I am not referring to 2,000 hours. I am asking you what would be a reasonable number of people who would devote their entire time to carrying out a contract of the size of the OVEC contract.

Mr. MURRAY. I would rather have the auditing department, Don Burrows, answer that question. It would be very few.

Representative COLE. Six is not very many.

Mr. MURRAY. That is right.

Representative COLE. All right. You have indicated that a total of 2,000 man-hours have been devoted by Commission staff people on this Dixon-Yates contract. That, as I compute it, represents 11 weeks

since November 11; 40 hours in a week is 440 hours. I compute that to a total of 4.7 men have been working on Dixon-Yates out of the entire Commission's activities since November 11. You have indicated yourself that 4 or 5 or 6 is a reasonable number to expect of Commission employees to devote the same amount of time to the OVEC and EEI contracts.

Frankly, I cannot be too disturbed by the figures you have presented.

Mr. MURRAY. That is up to you, Mr. Cole.

Representative COLE. I can understand that you are disturbed.

Mr. MURRAY. I am not disturbed by statistics. I have tried to tell you that I am not disturbed by statistics.

Representative COLE. I do not believe that your statistics corroborate or provide a basis for disturbance.

Mr. MURRAY. That is just a difference of opinion.

Representative COLE. I understand that. Thank you very much.

Chairman ANDERSON. Senator Jackson.

Senator JACKSON. Mr. Murray, you just have so much time available in the Commission, do you not, to work on the basic objectives of the atomic energy program, namely, the weapons undertaking, and the development of the peaceful atom?

Mr. MURRAY. That is right.

Senator JACKSON. And to the extent that you have to spend time on nonatomic matters, that of necessity takes that much time away from atomic matters.

Mr. MURRAY. That is correct, sir.

Senator JACKSON. Has it not been the objective of the Atomic Energy Commission from the very beginning to divorce itself of those matters that certainly should not be taken up by the Commission, such as the administration of the atomic cities like Oak Ridge and Richland?

Mr. MURRAY. We have attempted for several years to try to get rid of that, the administration of those various properties.

Senator JACKSON. But in this situation you are really adding to your agenda. That is the Dixon-Yates situation; you are adding to the agenda of nonatomic matters that does consume valuable time of the Commission, and people within the Commission that would otherwise be engaged in matters that relate to the weapons program and to the peaceful development of atomic energy.

Mr. MURRAY. I think that is correct, Senator.

Senator JACKSON. Would you say that the more time that the members of the Commission have available for atomic weapons program, and the peaceful atomic energy effort, that you will be able to make that much of additional contributions to those programs?

Mr. MURRAY. In my case I should answer "Yes" to that.

Senator JACKSON. You find you do not have sufficient time, I take it, to take care of all of the things that should be explored in the weapons field, and in the peaceful atomic energy field?

Mr. MURRAY. Particularly in the latter.

Senator JACKSON. Is it not a fact that we are behind in the rules and regulations regarding licenses?

Mr. MURRAY. We are.

Senator JACKSON. And there is quite a delay since the law was passed last summer in implementing that act, and making it possible for private enterprise to participate in the program?

Mr. MURRAY. Yes, sir.

Senator JACKSON. So that it is not just a matter of the statistics. It is a fact, I mean statistics as to the time consumed. In addition, you have the fact that the Commission is getting mixed up in matters that can lead to friction and in addition the public does get a bit disturbed that it is an area that has nothing to do with its own undertaking.

Mr. MURRAY. Yes, sir, I think that perhaps we could sum it up and say that we are in the midst of a nationwide debating society.

Senator JACKSON. And the Atomic Energy Commission was set up to further the utilization of the atom and not to power these debates with atomic fuel, or something.

Mr. MURRAY. I think that is correct.

Senator JACKSON. Is that not the real harm that is coming from the handling of the Dixon-Yates contract?

Mr. MURRAY. Yes.

Senator JACKSON. It is that the Atomic Energy Commission is being thrown out in the public, in the midst of a big quarrel and debate over Dixon-Yates.

Mr. MURRAY. I think that is correct.

Senator JACKSON. It is not just the hours that have been spent.

Mr. MURRAY. I tried to emphasize that so much, and then we look to the future. What is going to happen from today on? Are we going to be continually harassed with this contract for the next 2 years, and thereabouts, when we should be about really important business? We have only got so much time in the day and we have only so much energy to put into a program of this kind. When I divert that energy in any way, shape, or form, you are interfering with the production of reactors for peacetime application.

Senator JACKSON. And our atomic-weapons program has become such a massive affair that you cannot spend too many hours on that undertaking alone; can you?

Mr. MURRAY. Why, the problems are tremendous. The policymaking would require the wisest men that God ever made to be able to come up with the right and proper answers to the problems that we are facing today.

Senator JACKSON. In addition we read in the paper that the British are ahead of us in certain areas of peaceful atomic-energy development.

Mr. MURRAY. I don't believe that is so, despite the fact that Senator Anderson made reference to that on the television last Sunday evening.

Senator JACKSON. Well, certainly, Mr. Murray——

Chairman ANDERSON. You are not trying to get me in the debate; are you?

Senator JACKSON. Mr. Murray, we have just scratched the surface on the peaceful atom?

Mr. MURRAY. Yes, sir.

Senator JACKSON. You agree to that?

Mr. MURRAY. I do.

Senator JACKSON. And the only way you are going to develop the peaceful atom is to really push it. It takes time to push it; does it not?

Mr. MURRAY. It does.

Senator JACKSON. And the more you are detracted from that effort, the less push there will be behind the peaceful atom.

Mr. MURRAY. That is correct.

Senator JACKSON. I think that is all, Mr. Chairman.

Representative COLE. Could I ask just one more question, please? I hope Mr. Murray will respond in the vein in which it is asked.

Would you not agree with me, with reference to the harassment that the Commission has had over this matter since November, would you not agree with me that that harassment has stemmed from external sources to the proportion of perhaps 95 percent, rather than internally within the Commission itself?

Mr. MURRAY. That the harassment that the Commission has had stems externally to the Commission, rather than internally?

Representative COLE. From outside the Commission, from sharpshooting and sniping and criticisms and statements pro and con and so forth, emanating from without the Commission, all of which has tended to create whatever harassment there has ever been?

Mr. MURRAY. There is no doubt that that is there.

Representative COLE. You would not undertake to assess the percentage?

Mr. MURRAY. I would rather not, Mr. Cole.

Representative COLE. I did not expect that you would.

Mr. MURRAY. Thank you.

Representative PRICE. Regardless of where the harassment comes from, is it not a fact that the Dixon-Yates contract has embroiled the Atomic Energy Commission in political controversy.

Mr. MURRAY. I think so.

Representative PRICE. It does not make any difference where the harassment comes from, it comes.

Mr. MURRAY. It surely does.

Representative PRICE. And it has resulted from the Dixon-Yates contract.

Mr. MURRAY. These 11 o'clock telephone calls, I do not know where they come from, but they come.

Representative PRICE. Talking about telephone calls, your compilation of the hours spent in the various departments, does that take into consideration the telephone calls of officials of the Commission in connection with Dixon-Yates contract?

Mr. MURRAY. I did not follow your last question.

Representative PRICE. Did your compilation of the hours spent by various officials of the Commission take into consideration the telephone calls, the number of hours spent on the telephone, among the various Commissioners?

Mr. MURRAY. They may have been included in this statement that has been submitted to me by the General Manager. They may be in there.

Representative PRICE. But they are not included in the hours that you have listed?

Mr. MURRAY. These 2,087 hours, they may be in there. I only got these things last night, late in the evening, and I haven't had a chance to explore them.

Representative PRICE. One of your original reasons for being opposed to the Dixon-Yates contract, did not take into consideration

some of this harassment and the hours that would be spent defending this type of contract?

Mr. MURRAY. No, I think from my hindsight it is as good as my foresight, I would have taken different positions in many, many ways. It is very difficult to appraise what harrassment is going to occur from an action that you take.

Representative PRICE. To get away from the harassment from the outside or from the inside, or anything else, did not some of the Commissioners who were opposed to this foresee countless hours of unnecessary work for the Commission as a result of this contract?

Mr. MURRAY. I stated so last June, I think it was, in testimony before your committee.

Representative PRICE. I would like to read, for instance, just a sentence from the letter that Dr. Smyth and Dr. Zuckert sent to the Director of the Bureau of the Budget, in which they foresaw many of these things. They said:

> The creation of such a contractual relationship would place upon the Commission a continuing responsibility during the 25-year life of the contract for stewardship in respect to the matters irrelevant to the mission of the Commission.

So we are not going to get rid of this time element within the Commission even when the big noise passes over within a few months, if the contract remains in force.

Mr. MURRAY. We are not. I don't think we are.

Representative PRICE. There is going to be a continual drain on the man-hours of the Commission.

Mr. MURRAY. I think so.

Representative PRICE. Isn't your original opposition based on the fact that this is an operation remote from the responsibilities of the Commission?

Mr. MURRAY. Yes, sir.

Representative PRICE. I would like to clear that point up once and for all, Mr. Murray, because by inference there have been times here before the committee where it has been made to appear that you have not always been in opposition to the Dixon-Yates contract, as such, as a contractual matter before the Commission.

I read here in the record of June 1954, where you stated your opposition publicly then for the first time, and you based it on the fact that the Commission would be negotiating for a bulk block of power that is not needed by our present or projected production facilities. Has that situation changed any?

Mr. MURRAY. It has not.

Representative PRICE. Does the Commission need this power?

Mr. MURRAY. It does not.

Representative PRICE. Have you changed your thinking on the Dixon-Yates contract with the exception of the time that you did go along with the Commission in thinking it was in the public interest to end the controversy, and you voted or you signed the contract and placed it before the committee?

Mr. MURRAY. I have not.

Senator PASTORE. May I ask one question? Just so that the record will be complete, Mr. Murray, this Dixon-Yates contract was not undertaken by the Atomic Energy Commission by choice. You were directed to do so by the President of the United States, were you not?

Mr. MURRAY. Yes, sir, Senator.

Senator PASTORE. Therefore, if many hours were devoted to it in order to perform a good contract, and if we are to accept it as a contract, the fact of the matter is that that inures to the benefit of the American people. You would not want to create the impression here that we wasted the time on the contract. It was necessary to devote these hours to this gigantic undertaking, was it not?

Mr. MURRAY. It was not necessary to devote any such hours to the OVEC and EEI contracts.

Senator PASTORE. No, but I mean this. This involved a great deal of money on the part of the people of the United States to pay for these rates that were being agreed upon.

Mr. MURRAY. Yes, sir.

Senator PASTORE. And naturally, an understanding of that size did require many, many hours that might have been devoted to something else.

Mr. MURRAY. There is no doubt about that.

Senator PASTORE. But actually the Commission itself had no choice in the matter. They were ordered by the White House to undertake the contract, were they not?

Mr. MURRAY. I don't know whether we did not have any other choice, as you say, but we were instructed by the President to make a contract.

Senator PASTORE. Could you sit up and say, "No, we won't do it"?

Mr. MURRAY. We could have.

Senator PASTORE. Do you think that you should have?

Mr. MURRAY. I decided not to.

Senator GORE. What would you do if you had another such direction?

Mr. MURRAY. I think that I would wait until I got such a direction and comment on that, Senator.

Representative COLE. Could I ask one more question of Mr. Murray. Would you feel better about it, Mr. Murray, or do you feel that it might help to resolve the difficulties and eliminate the harassment if the administration of this contract were now to be taken over by TVA, and the Commission be relieved of the administration of the contract?

Mr. MURRAY. Well, we would be relieved, I think, of that burden of administration. To that extent—I don't know what harassment is going to continue. I think that you are a better judge of that than I am. I made a decision last November that I thought the signing of the contract and getting it out of the way would do this.

Representative COLE. I am seeking your recommendation and your advice. Do you feel it would be helpful considering all of the factors involved, if the TVA were to pick up the contract and carry out its terms?

Mr. MURRAY. I think it would be helpful.

Representative COLE. In behalf of the Commission?

Mr. MURRAY. I think to that extent it surely would be helpful.

Representative COLE. Do you think if that were done, it might tend to remove some of the criticisms and objections that are now lodged against the Commission for having embarked on what is characterized as the power-broker program?

Mr. MURRAY. I have no opinion on that.

Representative COLE. But at any rate, speaking for yourself, you think it might be helpful?

Mr. MURRAY. It would be helpful to have the TVA administer this contract, and I hope that as I said before the TVA would administer this contract and take it off our hands some way or other.

Senator GORE. This should never have been on your hands, should it?

Mr. MURRAY. I don't believe so.

Senator GORE. You have never thought so?

Mr. MURRAY. That is right.

Senator BRICKER. Mr. Murray, I notice here in your testimony you said:

> When I approved the signing of the contract last November, I testified before your committee that I did so in the public interest, in order to free the Commission to devote its entire effort to its primary responsibilities.

Did you think then it was a contract, a good contract in the public interest?

Mr. MURRAY. Yes, sir.

Senator BRICKER. At that time——

Mr. MURRAY. Could I go on to state something?

Senator BRICKER. Just let me ask the questions, and I will be through very briefly.

If it were a good contract at that time, and you approved it, and it was in the public interest, any time consumed since November 1954 has been the result of the opposition without ascribing any motive to it.

Mr. MURRAY. I suppose in part that is correct, Senator.

Senator BRICKLER. What part is not correct?

Mr. MURRAY. Well, you are asking me whether or not the difficulties that now arise since November have not been caused by actions taken by, I assume, the Democratic side of this committee.

Senator BRICKER. Whatever it is, I did not ascribe motives to it, but it has been the result of the opposition to the contract that you said in November was in the public interest.

Mr. MURRAY. I think that is correct.

Senator BRICKER. Well, now, you mentioned that you want to get back to the matters of primary interest to the Commission. I think that we all agree with that fact, and you would have been through them after November if the rest of the people interested and concerned would have felt that this was, as you felt it was, in the public interest and a good contract.

Mr. MURRAY. Yes, sir.

Senator BRICKER. Now, regardless of the opposition, or the support of this contract, the production of power is an essential part of the atomic energy program, is it not?

Mr. MURRAY. Yes, sir.

Senator BRICKER. And whether you have power or do not have power is of primary interest, and a fundamental basic interest of the Commission.

Mr. MURRAY. Yes, sir.

Senator BRICKER. That is all, Mr. Chairman.

Chairman ANDERSON. Mr. Holifield.

Representative HOLIFIELD. I would like to recall the circumstances of the EEI contract, and the OVEC contract. That was done in what years? Those contracts were concluded in what years? Do you recall that?

Mr. MURRAY. I think the EEI was concluded in 1951, and I am not quite sure. I think the other at the beginning of 1953; I am not sure of it.

Representative HOLIFIELD. The purpose of those contracts, and I believe they were both larger contracts than the Dixon-Yates contracts in terms of kilowatt-hour capacity, and in terms of money expended in their construction——

Mr. MURRAY. The EEI contract started out to be a plant for 500,000 kilowatts. This Dixon-Yates contract is 650,000. However, since that time, the EEI has been stepped up to pretty near 1-million-kilowatt plant.

Representative HOLIFIELD. And the OVEC plant was what?

Mr. MURRAY. Two million kilowatts.

Representative HOLIFIELD. Almost three times that size.

Chairman ANDERSON. 2,200,000 is the capacity, and the guaranty is less than that.

Representative HOLIFIELD. Both of those contracts were what you might call crash contracts, and they were presented to our committee as being necessary to produce additional plutonium and U-235 for weapon purposes, were they not?

Mr. MURRAY. That is right.

Representative HOLIFIELD. Our committee was urged that it was necessary in the national defense to give quick approval to those contracts, were we not?

Mr. MURRAY. We urged you, yes, sir.

Representative HOLIFIELD. And therefore our committee took action in one instance with 1 day's presentation of hearings.

Mr. MURRAY. Almost less than a day.

Representative HOLIFIELD. And in the other instance, I do not believe we had any hearings.

Mr. MURRAY. I don't know. You did not have any hearings on that one.

Representative HOLIFIELD. The financing of those contracts was done on the basis that financing is frequently done in the case of defense production, was it not? A contract with the Government was used as the basic collateral for the funding of bonds for the capital-plant investment, is that not true?

Mr. MURRAY. Yes, sir.

Representative HOLIFIELD. We have followed that in the case of defense contracts and defense production for many years, and it is an agreed upon national policy, is it not?

Mr. MURRAY. Yes.

Representative HOLIFIELD. Now, the Dixon-Yates contract for the production of electricity for defense purposes, was it?

Mr. MURRAY. It was not.

Representative HOLIFIELD. It was for the production of a civilian service, for civilians, was it not?

Mr. MURRAY. Yes, sir.

Representative HOLIFIELD. And for the private profit of the people who put the capital plant investment up?

Mr. MURRAY. Yes, sir. I would not have you believe that the EEI contract did not involve some profits.

Representative HOLIFIELD. But it was in the defense.

Mr. MURRAY. Yes, sir.

Representative HOLIFIELD. Now, any attempt to liken these three contracts, and to compare their advantages, and I might say if there are any advantages in the Dixon-Yates contract over the OVEC and the EEI, it was because this committee hammered out these provisions, and through long and tortuous hearings we forced those provisions into the contract. I believe you will agree with that.

Mr. MURRAY. We had more time.

Representative HOLIFIELD. And the committee scrutinized it carefully, and we did write into it these better provisions.

Now, the attempt to justify the Dixon-Yates contract on the basis that the previous administration had signed 2 similar contracts would be the same as justifying the use of 3 sticks of dynamite, 2 sticks of which you used for a lawful purpose to blow up an old stump in the yard, and the third stick of dynamite you put under your neighbor's house, and then to brag about the fact that all 3 of these 3 sticks of dynamite were just as good as the other.

It is not a question of whether the contract is a good contract, or a better contract than OVEC and EEI. It is a question of the purpose for which these contracts were negotiated and signed, is it not?

Mr. MURRAY. I think so.

Representative HOLIFIELD. And the purpose of the Dixon-Yates contract is completely different from the other two.

Mr. MURRAY. It is.

Representative HOLIFIELD. What difference in the putting of the credit of the Government behind the Dixon-Yates contract to provide civilian power for the city of Memphis—what difference is there between that and putting the credit of the Government behind a chain of grocery stores or a chain of clothing stores, or a chain of filling stations? Is there any difference of principle? In both instances would not it be to provide civilian services for civilian population for the profit of the people that put the enterprise through?

Mr. MURRAY. Looking at it in that light, I think the answer is yes.

Representative HOLIFIELD. This is a new principle, and this is a departure from the defense type of contract funding and financing, to funding and financing civilian operations for the benefit of private profit enterprises, using a Government contract as the basis for the credit for their capital plant investment, is it not?

Mr. MURRAY. I do not like to give a yes or no answer to a long question like that, but I think the effect is so. It is different, and I have tried to state that as clearly as I can, it is altogether different from the EEI and OVEC contracts.

Representative HOLIFIELD. I wanted to bring these facts out because there has been frequent reference to comparing the three contracts and trying to assess the valuation and evaluate these contracts. That is not the point at issue. The point at issue is the purpose for which the contracts were signed.

Mr. MURRAY. I think that is correct.

Representative HOLIFIELD. Now, you were asked by Congressman Cole, and you responded as I think you should have, to a question regarding the time spent since November 11. These time figures which you gave, 2,087 hours, was a result of his question. But is it

not true that that is a completely inadequate computation of the time spent on the Dixon-Yates contract by the use of the November 11 date, in view of the fact that the contract was signed on November 11, and our hearings ended on November 13, and all of the work and all of the preliminary negotiating and all of the work on the contract had been done previous to November 11.

Mr. MURRAY. Oh, yes, surely.

Representative HOLIFIELD. And such work as has been required since that time is minor in comparison to the work that was required of the Commission and its staff and its employees before November 11.

Mr. MURRAY. There is no question about it, Mr. Holifield.

Representative HOLIFIELD. So that the statistics here, while true, do not represent by any stretch of the imagination the time that has been taken since December of 1953 by the Commission and their staff on this subject.

Mr. MURRAY. That is correct.

Representative HOLIFIELD. That is all, Mr. Chairman.

Chairman ANDERSON. Thank you, Mr. Murray. I do not think many of us are left, but from here on out we are going to rule out everything relating to Dixon-Yates until we get through with the purpose of this hearing, which has to do with the progress and state of development of the industrial uses.

I merely want to say that Admiral Strauss has been notified that when he wants to appear and make a comment, he may do so.

Will you proceed.

STATEMENT OF MURRAY S. LEVINE, NEW YORK, N. Y.

Mr. LEVINE. Gentlemen, my name is Murray S. Levine, and I am an attorney. I practice law in the city of New York, and my office is at 61 Broadway. I am chairman of the civil defense committee of the Federal Bar Association, and also the chairman of the New York Committee on Atomic Information.

I have come a long way to speak to you gentlemen, primarily about the new look in the new law, and my testimony is going to be confined primarily to two words in the new law, "public understanding."

My connection with the atomic energy goes back to the war years when I served as an Army officer under General Groves at the atomic project at Oak Ridge, Tenn.

The New York Committee on Atomic Information is primarily a study group. We started out as an educational group, but we have developed now primarily to an organization that studies the rules and regulations and the law itself.

At this time I would like to congratulate the committee and the members of your staff. This comes at a time when most people at the community levels have a habit and a tendency of criticizing Congressmen, but we have read your law, the new law, and we think it is a monumental piece of work. I think that the country owes a great debt of gratitude to the gentlemen of this committee and their staff, Mr. Allardice, and the men who work with him.

I am not speaking here today as the representative of the bar association or the New York committee. My remarks have been prepared with the help of Dr. L. Sesson Gossell, whose name I think some of

you gentlemen know. He is the chairman of our religious and welfare subcommittee, and our legal industrial committee.

I personally have no financial interest or political interest in the atom. I have no desire to work for the Government. I am not looking for a job. I have no desire to run for public office. I am not interested in any investments in atomic energy. My main concern, and there are millions of people like me in this country, is the life and death of atomic energy. I hope and fear that it represents what I am interested in.

I have the belief that sound public education in this field would dispose of some of the mystery and some of the hysteria and misunderstanding that surrounds the atomic-energy program. To a great extent, the New York committee was formed because we instinctively knew in 1948 the same thing that evidently you found out in writing the law. We knew at that time that public information and public understanding was necessary. That is the reason we were very happy to see a definite affirmative approach to the problem of public education and public understanding.

Now, just a few words about what the New York committee has achieved to date. That will give you an idea of what a small group of public citizens can do with very limited resources, and very limited facilities. We sold the city of New York and the Federal Government, and some of the atomic contractors the idea of running an atomic committee. As a result of our efforts, the largest atomic exhibit in the history of the country was run in New York City. Over 1 million people attended that exhibit. That exhibit in most part now is down at the Museum of Atomic Energy at Oak Ridge, Tenn., and it is still used in mobile uses for exhibition at State fairs, and for the education of the public.

Some of the members of our organization were concerned about our educational habits in the Board of Education of New York, and we sponsored, and as a result of our work a series of seminars was run to educate our schoolteachers to the new look of atomic energy and the atomic age.

The committee has sponsored over 250 lectures and forums for civic organizations, both in the New York City limits, and the surrounding States. We have published either in print or mimeographed form over 36 pieces of literature. I have copies here with me which I do not think should be put in the record, but this is an example of the work that we have done.

Here we have a critical review of atomic energy which was attended by 7 or 8 speakers at Fordham University. This is a statement of civil-defense legislation in the atomic age.

Here is a paper submitted on the atomic energy and patent law. We have 36 of these papers which have been called for and requested by many institutions, schools, colleges, and mostly young people of the country. We fulfilled these requests.

Senator PASTORE. How are you sustained?

Mr. LEVINE. We are sustained, we work on very little capital.

Senator PASTORE. I am not being critical. I am just curious. Where do you get your capital?

Mr. LEVINE. From our own membership. For example, the man who has prepared this paper will pay the expense of publishing the

paper himself, and he mimeographs this at his own expense. And we fix the price of 25 cents on this copy, and send it out to the country, and 25 cents is returned in stamps and that about pays for the publication.

We have no office and no staff help, and I think in all of our activities over a period of 6 or 8 years, we had a capital expenditure of probably not more than $2,000.

The largest contribution to the committee was perhaps $100, but this is a contribution of time and of money on the part of the membership of the group.

Now, through our religious and welfare committee, we arranged hearings where the three major faiths participated in discussing the philosophical and ethical and religious implications of the atomic age. We have records of those meetings. Our members have taken a very definite interest in the question of civil defense. We have appeared here at hearings before this committee, the Armed Services Committee, and you can read a copy of the testimony that we presented to these committees over the period of years.

Gentlemen, I would like to make some general remarks about the state of the atomic understanding in this country today. In the field of civil defense we as a people are almost completely unprepared. This would be a dangerous statement to make ordinarily, because it may give comfort to the enemy. But I make the statement because I believe that Russia knows we are unprepared.

I live in New York, one of the most congested cities of the world, and one of the hardest to defend in the atomic age. Our traffic is so congested that if a fuse blew out in one of the automobiles traveling on one of our main arterial highways, there would be a backup of cars within a few minutes of a few miles.

What would happen if an atomic bomb exploded over New York City today. I was born and I was raised in New York City, and I know the people around me, and I say this to you, and I say this definitely, that if an atomic attack occurred tomorrow over the city of New York, New York would suffer one of the greatest human tragedies in the history of the world, because we are not prepared. We don't know what the score is and we don't know the implications, and we don't know how to defend ourselves. That goes for the people who are at city hall.

For some reason the information so badly needed to defend our population and to defend our people from this new threat of the atomic age has not drifted through to the public.

People say that New York City is far ahead of other cities of the country, and if it is far ahead, then the country today in my opinion is totally unprepared if war should come tomorrow.

Mr. HOLIFIELD. I think you attended one meeting in New York where we discussed atomic energy. You know the concern of the individuals. These were all men who were busy men, who met in afternoons and discussed this. There is nobody at city hall, and there is nobody in New York City today of authority and power who has taken the reins to defend our city in the event we are attacked. In my opinion, Civil Defense has taken its place with the other services. The other services are the Army, the Navy, and the Air Force. Without civil defense, and an adequate civil defense, America is not prepared today.

Gentlemen, I am not going to read through my entire statement here There are a number of problems that arise directly out of this lack of knowledge and understanding One problem is the problem of scientists. I served at Oak Ridge, and I first came in contact with scientists at the early stages of the war. We found them to be people who are hard to understand. General Groves once told me that he was going to write a history, a human history of the Manhattan Project. I wish he had. I am going to tell you one story about the scientists down at Oak Ridge, and maybe it will be a key to how they should be treated today.

In the early stages of our activities, and this was in the latter part of 1943, there were many complaints out of the laboratories and the pilot plants. The complaints were that our scientists were coming to work late, and would drift around, and they did not apply themselves to their work. We considered that a serious issue. So we got together up at the Hill, and we thought that we would have to control them somehow. We did.

My job was selective service. We administratively determined that any scientist who came in late, or did not report for work, was no longer regularly engaged in important war effort, and we withdrew our deferments.

We tried other ways to keep them under control.

Gentlemen, we were able to get these men in at 8:30 in the morning and keep them on their jobs, but we found out one thing. You cannot tell a scientist to start thinking at 8:30 in the morning, or to continue thinking during the day. That is one point that I think you gentlemen have overlooked in the way you have handled the security problems, and the loyalty problems of the scientists. You must understand that. It took us many, many months, and many years, to understand the scientists. But they turn out to be conscientious, and good and loyal citizens equal to any citizens in the country, and any man who deals with the secrets of nature, or the wonders of the world must necessarily acquire a sense of humility and a sense of humbleness. These men are good Americans, and clean Americans, and I feel that in treating them the way we did, we made a terrible mistake. I don't go along with the statements out of the Atomic Energy Commission, or the statements made by various people that our scientific fraternity in America has not been harmed by the secrecy, and by the security enforced upon them.

From the example I told you at Oak Ridge, you cannot treat these men, or I would not treat these men as names or numbers. Insofar as America is concerned, I would treat scientists as a national resource, to call upon them in the time of need. I would not treat them as individuals. I would treat them as the young man who goes into the Army, the man whom we need for his brain and his brawn, and for his keen eyesight. That fear that has come upon this society, and that is quite evident, is also affecting the young men who are drifting into the chemical fields and the fields of physics.

This is also tied in very directly with public understanding, an understanding of things about us, and the various implications of the atomic age.

Gentlemen, you have given the country a very powerful weapon in providing for public information. That is the basis of our society.

The people should know the score, and act upon facts, and not upon headlines, and upon the beliefs and thoughts and dreams of a lot of columnists, and a lot of newspaper writers.

Representative HOLIFIELD. May I interrupt Mr. Levine a moment?

Mr. Levine, do you believe that we should have more information in regard to weapons effects released to the American people?

Mr. LEVINE. Absolutely I believe so, sir.

Representative HOLIFIELD. Do you believe we can have a realistic civil defense unless these weapons effects are released to the people?

Mr. LEVINE. No. It is impossible in my opinion to have a realistic defense, and I would like to give you an example. Mr. Cole is here, and I think he would understand this. When the first atomic-bomb test was run in Nevada, and our civil-defense authorities were bringing the story of the atomic protection based on the results of Bikini, and in all of the press conferences held at Nevada, and here in Washington, the Atomic Energy Commission was releasing information, and they told the people definitely that this is only speculation. They were not telling the truth. So, on one hand, we had rumors of more and bigger and more powerful atomic bombs, and on the other hand, and at the same time our civil-defense authorities were preparing the people on the T-model bomb or the obsolete bomb.

That killed the incentive down to the grassroots levels. People said, What is the use of training here if we get the rumors that these bombs are 10 times as powerful as the ones we were told about?

Representative HOLIFIELD. Do you believe we can have a realistic civil defense on a voluntary basis?

Mr. LEVINE. No; I do not.

Representative HOLIFIELD. Do you believe a realistic civil defense can be had on local financing?

Mr. LEVINE. No, sir; I think civil defense is primarily an obligation of the National Government, and it should be financed by the National Government, and when I say that I don't believe that civil defense can be manned on a voluntary basis, I don't necessarily talk about the need of a draft for civil defense. But I say place the responsibility of recruiting the people—take it out of the hands of city hall and out of the hands of Washington, and put it in the hands of local leaders in the community. That is where it belongs.

Representative HOLIFIELD. Do you believe it can be organized on a community basis?

Mr. LEVINE. Absolutely.

Representative HOLIFIELD. Or do you believe it should be organized on a target area basis?

Mr. LEVINE. It should be organized on a national basis.

Representative HOLIFIELD. Wait a minute. I am talking about organizing units of civil defense. Do you conceive it would be realistic to confine your organizations to either city, county, or State levels when a target area might encompass all of those subdivisions, and even to the point of covering parts of several States?

Mr. LEVINE. Well, I don't think you could build civil defense in piecemeal.

Representative HOLIFIELD. That is what I mean.

Mr. LEVINE. The plant at Oak Ridge, Tenn., may be saved not by the air-raid spotters in Nashville or in Memphis, but it may be saved by the air-raid spotters up in Minnesota.

Representative HOLIFIELD. In other words, the organization of civil defense must be on a target-area-wide basis, rather than on a citywide basis, or a countrywide basis.

Mr. LEVINE. When you talk about target-area basis, we are——

Representative HOLIFIELD. You know there are about 73 primary military targets in the United States, and you recognize that those target areas do transgress city lines and county lines, and State lines.

Mr. LEVINE. That is true, but I don't like to divide the country into target areas, because nobody knows where and when an atomic bomb will fall. I think the entire country is a target area personally.

Representative HOLIFIELD. But there are primary and secondary targets. You would not say the cornfields of Iowa and Ohio are the target that the city of Detroit is, for example?

Mr. LEVINE. With the news that came out of California, it may be, sir. The news I read in the paper yesterday about the fallout of the atomic or hydrogen bomb.

Representative HOLIFIELD. That is a little bit different.

Chairman ANDERSON. I do want to remind you that the hearing is primarily on the growth, development, and state of the atomic energy industry, and it is not primarily on civil defense.

Mr. LEVINE. Well, I went off on a tangent on civil defense. My main purpose was to plead with you gentlemen to watch the New Look in the new law. Under the old Atomic Energy Act, the question of disseminating information to the public was one prepared on a negative basis. Under the new law, the Atomic Energy Commission is publicly required to disseminate the information, and I don't think there is anybody or any group other than this one that can police that new obligation of the law.

Chairman ANDERSON. Thank you very much, Mr. Levine.

(Mr. Levine's prepared statement appears on p. 423.)

STATEMENT OF THEODORE S. KENYON, ATTORNEY AT LAW, KENYON & KENYON, NEW YORK, N. Y., CHAIRMAN OF SUBCOMMITTEE ON ATOMIC ENERGY, AMERICAN PATENT LAW ASSOCIATION, WASHINGTON, D. C.

Mr. KENYON. My name is Theodore S. Kenyon. I am a senior member of the firm of Kenyon & Kenyon, in New York City. Our firm has been specializing in patent problems and patent litigation for the past 60 or 70 years.

I am here on behalf of my fellow committeemen and myself to submit a considered proposal for amendment of two vital sections of chapter 13 of the 1954 act relating to patents. Our proposal is made in the earnest hope that it may be found to provide the constructive compromise that was sought between the two Houses at the last session of the Congress, whereby the powerful incentive of the patent system may be brought to bear at least for the maximum development of atomic science, while at the same time avoiding the slightest possibility of thereby obstructing the AEC or its contractors or sublicensees in the carrying out to the full of their proper functions under the act.

When I had the privilege of testifying before this Joint Committee last May, the bill under consideration, H. R. 8862, did not contain any

provision for compulsory licensing. Thereafter, on May 21, a committee print was circulated containing a section requiring all applicants for patents on atomic inventions to file affidavits stating the circumstances under which the inventions were made or conceived; and in June 1954, H. R. 9757 was introduced omitting this provision but containing a section (No. 152) providing for compulsory licenses in subtantially the form of section 153 of the present act. Between that time and the enactment of the 1954 law, a new section was proposed, which is now section 152 of the act. The House bill contained section 152; the Senate bill contained section 153. After the Senate filibuster, agreement was reached by adopting both, though this did not in fact compose the conflicting views.

The effect of section 152 is not only to require information concerning inventions, as in the committee print of May 21, but also to give the AEC full title to every invention relating to atomic science that is not made or conceived entirely independently of any arrangement or relationship with the AEC.

The effect of section 153 is to give the AEC the power of eminent domain over atomic inventions of primary importance, and also the power to require independent inventors to grant compulsory licenses to private operators.

While we of the patent bar have certain suggestions to make with respect to other sections of the 1954 act, we consider amendment of these two sections, Nos. 152 and 153, of such paramount importance that I am limiting my comments here entirely to the questions which they raise and how they may be amended.

Both sections are subject to serious objections on grounds on unconstitutionality as well as public policy. Yet the sound purpose back of both of them can be achieved, we believe, by combining them in the amended form annexed to this statement.

I should say at once that the board of managers of the APLA has not had an opportunity to approve or disapprove this proposal. It was prepared by me in consultation with the present chairman of the atomic energy committee of the New York Patent Law Association. It has been approved by the atomic energy committee of the APLA, and submitted within the past week to the governors of that association. I am speaking therefore solely on behalf of my committee and myself.

Representative COLE. May I ask the witness to take just a minute to explain how you propose to combine 152 and 153?

Mr. KENYON. Yes, sir, I think the statement that I am about to read will do that. Perhaps you have not a copy of it.

Representative COLE. I will listen to you.

Mr. KENYON. Briefly, we would combine sections 152 and 153, leaving unchanged the existing requirement of section 152 that no patent shall be issued in the atomic field unless the applicant files an affidavit stating all the circumstances surrounding the invention and whether it was made or conceived in connection with any arrangement or relationship with the Commission, copies of both the application and the affidavit being supplied to the Commission. We would transfer other provisions of section 152 into section 153 so as to make it a necessary condition for the granting of compulsory licenses that there be some arrangement or relationship between the inventor and the Commission at the time the invention was made or conceived.

By these amendments section 152 would require that the Commission be supplied with all of the information presently available to it under section 152 and would be in position either (*a*) to assert such rights in the invention as it might be entitled to under its arrangement or relationship with the inventor or (*b*) to acquire a license by eminent domain under section 153 or (*c*) to use the invention for governmental purposes under the general provisions of existing law.

Section 153 would be relieved of its chief constitutional objection, since it would be inapplicable to inventions made wholly independently of connection with the AEC. The controversial power to require independent inventors to grant compulsory licenses to private operators would be removed. But the amendment would not alter or diminish any rights under independent inventions which the AEC might choose to exercise under existing patent law or to acquire by eminent domain under subsections (a) and (b) (including sublicensing rights).

Senator PASTORE. What your presentation amounts to is that you would remove from the law compulsory licensing.

Mr. KENYON. No, sir. I would keep compulsory licenses as they are today, in the existing law, except that when the situation arose under 153 (e) where an applicant was requesting a compulsory license, one of the conditions to be considered in connection with the grant of it would be whether the invention had been made entirely independently of the Atomic Energy Commission. If it had, the Commission would not be empowered to grant a compulsory license.

Senator PASTORE. Would not that amount to what I suggested?

Mr. KENYON. No, because that is the proceeding under subsection (e). But we have no criticism of sections (a) and (b) of the section 153.

Senator PASTORE. Let us assume an invention was in the public interest, to be used by someone else, and the Commission so felt. They would rule with fair compensation that this license or the technique should be granted to someone else. Let us assume again that it was done independently of any relationship with the Commission. Would you say in that case there the public interest should be subjected to the man's right to do what he pleased with it?

Mr. KENYON. You see, Senator, we have the problem of providing the incentive which is necessary to produce these inventions in the first place.

Senator PASTORE. We went all through that in the debate and the Congress finally decided we ought to have a compulsory provision.

Mr. KENYON. That is right.

Senator PASTORE. You are going back to the original discussion that took place before we wrote that in the law, by saying that we are destroying incentive. Now, there are some who agree with you, but on the other hand, that is not what the Congress decided.

Mr. KENYON. You misunderstand me, sir. I would retain subsections (a) and (b) of section 153 which empower the Commission after giving the patent owner an opportunity for a hearing, to declare any patent to be affected with the public interest. I would leave that in. And under those circumstances the Commission, after the hearing, and after making certain findings, is entitled to a license to use it, and it is entitled to grant sublicenses, in effect, to others operating under the act. We would not touch that at all.

In other words, that is an exercise of the right of eminent domain. That is, when a patent is declared to be affected with the public interest, then it is in effect taken over, then it is property taken over by the Government. It is just as if in the artillery range, the Government shoots over private property.

Now, that private property by the act of the Government is taken by eminent domain, and the owner may be compensated by the Government.

So here, where the Commission declares that this property is affected with the public interest, it in effect applies the doctrine of eminent domain to that property and can use it and permit other people to use it, of course upon fair compensation.

Now, the situation we would change is this one, that where it is not a proceeding initiated by the Commission, but by an outsider who comes in and says, "I want a license under Senator Pastore's patent," the Commission says, "Under those circumstances, if you want the Commission to award a compulsory license where the Commission has not taken the initiative in the matter, and there is no declaration that the patent is affected with the public interest, as a first condition was that invention made as the result of any connection with the Atomic Energy Commission? If not, then we have no power to grant this compulsory license short of declaring that that patent is affected with the public interest and paying the consequences."

Senator PASTORE. Are you saying that under the present law even without showing that a license is affected with the public interest, an applicant can come in and without showing that it is affected with the public interest, be allowed to use it?

Mr. KENYON. The law at present says that he must show that it is a matter of primary importance. But that is short of a finding by the Commission that the patent is affected with public interest. There is that distinction between the provisions of subsections (a) and (b) of the law, and subsections (c), (d), and (e).

What we are proposing here is an attempt to avoid the constitutional objections that are made at present to the compulsory-licensing provisions of section 153 in the case of entirely independent inventions, and also to avoid the objections to unconstitutionality that are made with respect to section 152.

We earnestly hope that this suggestion may serve the purpose. We want exactly the same thing that you want. We want to promote the development of atomic energy, and we want at the same time to avoid any interference with the proper activities of the Commission or its contractors or its sublicensesees.

Now, this is a serious problem. It is a problem of adjusting the objections of unconstitutionality to the purposes or the sound purposes that we are all seeking.

Senator PASTORE. I think that I follow you, Mr. Kenyon.

Mr. KENYON. I think that I should emphasize the constitutional objections to section 152 as it stands. You will find the sentence that we particularly point out as objectionable printed in the middle of page 3 of my statement, and I will just read it.

Senator PASTORE. Do you mean 152 or 153?

Mr. KENYON. It is in section 152. This says in the present law:

> Any invention or discovery useful in the production or utilization of special nuclear material or atomic energy, made or conceived under any contracts, subcontracts, or arrangements or other relationship with the Commission, regard-

less of whether the contractor or arrangement involved the expenditure of funds by the Commission, shall be deemed to have been made or conceived by the Commission.

Now, if you will look at page 4 of the statement, there the comments of Mr. Bennett Boskey, who is former Deputy General Counsel of the Commission, of Assistant Dean Cavers of the Harvard Law School, both of whom say that this is a very depressing provision, because of the policy expressed, and Mr. Ooms, who was a former Commissioner of Patents, saying it is the most mischievous provision in the entire law.

Now, in addition to those objections on the grounds of policy, here are statements of objections as to constitutionality.

First, to the extent that the law expropriates inventions beyond those to which the Atomic Energy Commission would be entitled by contract or general law, it is confiscatory of private property rights, without compensation or remedy.

I call your attention to the fact that section 152 has no provision for compensation whatever.

Second, to the extent that it directs the issuance of patents to the AEC for inventions to which it is not entitled by contract, it is beyond the constitutional power of Congress. The Constitution gives Congress no power to grant patents except to the true inventors or their assignees. That power cannot be enlarged by legislative fiat that the invention is deemed to have been made or conceived by the AEC.

Third, the expropriation of property rights so uncertainly defined is not in accordance with due process of law.

We suggest amendment of section 152 which would strike out the confiscatory and uncertain and ambiguous portions of it, and still retain the provision that no patent in this field shall issue unless the affidavit is filed giving all of the circumstances, and a copy of that being supplied to the Commission, so that the Commission will have full information upon which to act if it has any rights in that invention.

And secondly, without disturbing in any way the eminent domain provisions of section 153, we would alter the provisions respecting independent applications, apart from Commission applications, to those inventions which have some relation with the Commission in their origin.

Now, we have earnestly striven to help on this situation. This is a proposal which we submit very humbly, but with the real conviction that it may be of service.

Senator PASTORE. I should like to look at it and study it.

Mr. KENYON. The whole thing is right there.

Senator PASTORE. I see that it is.

Mr. KENYON. There are other sections of the patent chapter that we have some questions about, but this seems so important that we felt we ought to take advantage of the opportunity to come down here and express our views on this, too.

If you would like any of our suggestions about the other provisions, we would be glad to submit them.

Senator GORE. Mr. Chairman, I wish to thank the distinguished gentleman for a very forceful and a very interesting presentation of this issue.

Chairman ANDERSON. I want to say to you that when we reached the conference report the last time, where the Members of the House

did not like the patent provisions, there was a promise to them that we would explore it, and I think it is a fine thing that you have given us a good statement and a fine legal statement which we appreciate.

Mr. KENYON. Thank you very much, sir.

Chairman ANDERSON. I think if you have additional suggestions, if they are up to the standard of this, we would be happy to have them.

Mr. KENYON. Thank you very much.

Chairman ANDERSON. We will insert your proposed amendments in the record at this point.

(The information referred to follows:)

PROPOSED AMENDMENT OF SECTIONS 152 AND 153 OF THE ATOMIC ENERGY ACT OF 1954

Matter enclosd in black brackets is to be deleted. Matter italicized is to be added.

SEC. 152. *Affidavit as to Circumstances of Conception.* [Inventions Conceived During Commission Contracts.—Any invention or discovery, useful in the production or utilization of special nuclear material or atomic energy, made or conceived under any contract, subcontract, arrangement, or other relationship with the Commission, regardless of whether the contract or arrangement involved the expenditure of funds by the Commission, shall be deemed to have been made or conceived by the Commission, except that the Commission may waive its claim to any such invention or discovery if made or conceived by any person at or in connection with any laboratory under the jurisdiction of the Commission as provided in section 33, or under such other circumstances as the Commission may deem appropriate.] No patent for any invention or discovery, useful in the production or utilization of special nuclear material or atomic energy, shall be issued unless the applicant files with the application, or within thirty days after request therefor by the Commissioner of Patents, a statement under oath setting forth the full facts surrounding the making or conception of the invention or discovery described in the application and whether the invention or discovery was made or conceived in the course of, in connection with, or under the terms of any contract, subcontract, arrangement, or other relationship with the Commission, regardless of whether the contract or arrangement involved the expenditure of funds by the Commission. The Commissioner of Patents shall forthwith forward copies of the application and the statement to the Commission.

[The Commissioner of Patents may proceed with the application and issue the patent to the applicant (if the invention or discovery is otherwise patentable) unless the Commission, within ninety days after receipt of copies of the application and statement, directs the Commissioner of Patents to issue the patent to the Commission (if the invention or discovery is otherwise patentable) to be held by the Commission as the agent of and on behalf of the United States.]

[If the Commission files such a direction with the Commissioner of Patents, and if the applicant's statement claims, and the applicant still believes, that the invention or discovery was not made or conceived in the course of, in connection with, or under the terms of any contract, subcontract, arrangement, or other relationship with the Commission entitling the Commission to take title to the application or the patent, the applicant may, within thirty days after notification of the filing of such a direction, request a hearing before a Board of Patent Interferences. The Board shall have the power to hear and determine whether the Commission was entitled to the direction filed with the Commissioner of Patents. The Board shall follow the rules and procedures established for interference cases and an appeal may be taken by either the applicant or the Commission from the final order of the Board to the Court of Customs and Patent Appeals in accordance with the procedures governing the appeals from the Board of Patent Interferences.]

[If the statement filed by the applicant should thereafter be found to contain false material statements, any notification by the Commission that it has no objections to the issuance of a patent to the applicant shall not be deemed in any respect to constitute a waiver of the provisions of this section or of any applicable civil or criminal statute, and the Commission may have the title to the patent transferred to the Commission on the records of the Commissioner of Patents in accordance with the provisions of this section.]

SEC. 153. Nonmilitary Utilization—

a. The Commission may, after giving the patent owner an opportunity for a hearing, declare any patent to be affected with the public interest if (1) the invention or discovery covered by the patent is of primary importance in the production or utilization of special nuclear material or atomic energy; and (2) the licensing of such invention or discovery under this section is of primary importance to effectuate the policies and purposes of this Act.

b. Whenever any patent has been declared affected with the public interest, pursuant to subsection 153a—

(1) the Commission is hereby licensed to use the invention or discovery covered by such patent in performing any of its powers under the Act; and

(2) any person may apply to the Commission for a nonexclusive patent license to use the invention or discovery covered by such patent, and the Commission shall grant such patent license to the extent that it finds that the use of the invention or discovery is of primary importance to the conduct of an activity by such person authorized under this Act.

c. Any person—

(1) who has made application to the Commission for a license under sections 53, 62, 63, 81, 103, or 104, or a permit or lease under section 67;

(2) to whom such license, permit, or lease has been issued by the Commission;

(3) who is authorized to conduct such activities as such applicant is conducting or proposes to conduct under a general license issued by the Commission under ssection 62 or 81; or

(4) whose activities or proposed activities are authorized under section 31,

may at any time make application to the Commission for a patent license for the use of an invention or discovery useful in the production or utilization of special nuclear material or atomic energy covered by a patent. Each such application shall set forth the nature and purpose of the use which the applicant intends to make of the patent license, the steps taken by the applicant to obtain a patent license from the owner of the patent, and a statement of the effects, as estimated by the applicant, on the authorized activities which will result from failure to obtain such patent license and which will result from the granting of such patent license.

d. Whenever any person has made an application to the Commission for a patent license pursuant to subsection 153c—

(1) the Commission, within thirty days after the filing of such application, shall make available to the owner of the patent all of the information contained in such application, and shall notify the owner of the patent of the time and place at which a hearing will be held by the Commission;

(2) the Commission shall hold a hearing within sixty days after the filing of such application at a time and place designated by the Commission; and

(3) in the event an applicant applies for two or more patent licenses, the Commission may, in its discretion, order the consolidation of such applications, and if the patents are owned by more than one owner, such owners may be made parties to one hearing.

e. If, after any hearing conducted pursuant to subsection 153d, the Commission find that—

(1) the invention or discovery covered by the patent was made or conceived (a) under a contract, subcontract, arrangement, or other relationship with the Commission, regardless of whether the contract or arrangement involved the expenditure of funds by the Commission, or (b) by a person holding a license from the Commission under sections 62, 63, 81, 103, or 104, or a permit or lease under section 67;

[(1)] *(2)* the invention or discovery covered by the patent is of primary importance in the production or utilization of special nuclear material or atomic energy;

[(2)] *(3)* the licensing of such invention or discovery is of primary importance to the conduct of the activities of the applicant;

[(3)] *(4)* the activities to which the patent license are proposed to be applied by such applicant are of primary importance to the furtherance of policies and purposes of this Act; and

[(4)] *(5)* such applicant cannot otherwise obtain a patent license from the owner of the patent on terms which the Commission deems to be reasonable for the intended use of the patent to be made by such applicant, the Commission shall license the applicant to use the invention or discovery covered by the patent for the purposes stated in such application on terms deemed equitable by the Com-

mission and generally not less fair than those granted by the patentee or by the Commission to similar licensees for comparable use.

f. The Commission shall not grant any patent license pursuant to subsection 153e for any other purpose than that stated in the application. Nor shall the Commission grant any patent license to any other applicant for a patent license on the same patent without an application being made by such applicant pursuant to subsection 153c. and without separate notification and hearing as provided in subsection 153d, and without a separate finding as provided in subsection 153e.

g. The owner of the patent affected by a declaration or a finding made by the Commission pursuant to subsection 153b or 153e shall be entitled to a reasonable royalty fee from the licensee for any use of an invention or discovery licensed by this section. Such royalty fee may be agreed upon by such owner and the patent licensee, or in the absence of such agreement shall be determined for each patent license by the Commission pursuant to subsection 157 [c] *e*.

h. The provisions of this section shall apply to any patent the application for which shall have been filed before September 1, 1959.

STATEMENT OF NEWTON I. STEERS, JR., PRESIDENT, ATOMIC DEVELOPMENT MUTUAL FUND, WASHINGTON, D. C.

Mr. STEERS. My name is Newton I. Steers, Jr., and I am president of the Atomic Development Mutual Fund, Inc.

Because of the hour this afternoon, I will just insert my statement in the record, Mr. Chairman.

Chairman ANDERSON. Without objection, it will be inserted in the record at this point.

(The statement referred to follows:)

STATEMENT BY NEWTON I. STEERS, JR., PRESIDENT, ATOMIC DEVELOPMENT MUTUAL FUND, INC., WASHINGTON 7, D. C.

My name is Newton I. Steers, Jr. I am president of Atomic Development Mutual Fund, Inc. When I appeared before this committee on May 11, 1954, we were about 5 months old, and assets of our fund were about $1¼ million. We are now a little over a year old, and assets are in excess of $15 million. This growth constitutes a record in the branch of the securities business known as the mutual fund industry.

This rapid growth, which others have called even phenomenal, is of particular significance because it reflects the public's view of the financial future of atomic energy. Our fund has been presented as a vehicle for capital appreciation and not for income. The investing public evidently agrees with us that atomic stocks have a greater growth potential than any other group of stocks which could be assembled.

Some people feel that the public's enthusiasm has bid prices up beyond what earnings can support, that atomic prices are too high. The commonly used ratio of price to earnings is, as a result, abnormally high, when based on present earnings. The question, of course, is whether future earnings will sufficiently increase in a short enough time to justify purchase at present prices. That is to say, whether increased future earnings will cause prices to rise over present levels by a sufficient amount, and soon enough, to provide justification for present purchase.

It is, of course, true that atomic stock prices cannot be expected forever to remain abnormally high relative to earnings. On the other hand, they may be expected to remain high in relation to other stock prices as long as the atomic industry is expected to grow more rapidly than other industries and, hence, permit higher earnings by the companies engaged in it than by other companies not so engaged. And particularly is this so if the rate of growth of the industry is itself growing. For those of you with a mathematical background, atomic stock prices may be said to be a more direct function of the first, or even the second derivative of earnings than of earnings themselves. To hold otherwise is to imply that prices cannot, or at least will not, rise until potential earnings have actually been realized. Those who hold to such a notion will inevitably

find themselves lagging behind persons more willing to act on, not earnings, but prognostications of earnings; lagging behind, and buying at higher prices instead of selling at higher prices; lagging behind and, in effect, paying capital gains to earlier worms. We must not forget, of course, that a company which enters a new field and derives the benefits of extraordinary growth is not benefiting itself alone. It benefits its customers—the public. Economically speaking, the leaders of such a company have achieved a more efficient allocation of resources. Those who finance such a shift in resource allocation also contribute to the public benefit, as do those members of the public who, by their investment, release the money controlled by the primary sources of new capital for use on the next round.

But still, say more sophisticated critics, let us concede that atomic stock prices will naturally be higher in relation to earnings than other classes of stocks. But what if they are too high, even on that basis? The answer to this question involves an attempt to appraise how rapidly the atomic industry is now growing, and how rapidly that rate of growth is itself growing.

Such an appraisal is made more difficult by the concealment, most of it no doubt necessary for security reasons, of many of the key figures. The problem is further complicated by the fact that many "atomic" companies are in other fields as well and the extent of their atomic involvment is not always easy to estimate. Nevertheless, let us outline the various segments of the private atomic energy business and infer as much as we can as to its all-important growth. In the table below, minimum figures are given on the dollar size of various portions of the private atomic industry at the end of 1955. For comparison, the figures supplied this committee in May 1954, are also given.

TABLE 1

	May 1954	Rate by end of 1955
Uranium and other atomic minerals	325	600
Radioisotopes and radiation instruments	27	40
Specialized equipment supply	107	200
Total	459	840

You will note that these figures are minimum figures. By this, I mean they represent minimums which can be supported with reasonable assurance, on the basis of the data available. Larger figures may, therefore, merely imply the release of additional data, rather than an increase in activity. Nevertheless, we must draw our inferences from the best figures available. Indeed, to ignore figures showing increases is in itself to draw the inference that there has been no increase.

Mr. Jesse Johnson, AEC's Director of Raw Materials, stated a few months ago that the domestic uranium industry was at the $100 million mark annually, and that production should double within 18 months. (He also revealed that persons engaged in uranium mining had multiplied 8,000 percent since 1948.) On this basis, the $200 million mark should be reached about the end of 1955. We also know that two other areas are about as important as the United States. These areas are Canada and the Belgian Congo. If one of these is less important now than the United States, it may well be the other is more important. On this basis, we can arrive at a figure of 3 times $200 million, or $600 million. To be sure that this figure is truly a minimum we should remember that South African production is mounting rapidly and, by the end of 1955, may well cause that area to be 1 of the 3 leading areas. We know that 1954 production from South Africa was in excess of $25 million and was over 5 times that in 1953. Furthermore, our total figure is based on the inclusion of other minerals important to atomic energy, such as zirconium, beryllium, thorium, and lithium. The lithium industry in 1955 will be over $20 million, based on the expected sales of the 2 leading producers alone.

Passing from uranium to radioactive materials and radiation-instruments figures, we are dealing with smaller figures, but ones showing very rapid in-

creases. Thus AEC figures show that radioisotope shipments have multiplied nearly 5 times in the last 5 years and the dollar volume of radiation instruments manufactured has increased more than 5 times to over $30 million. No one can foresee how large a market may develop for the class of radioactive materials which are left over after uranium fissions (fission products). Chairman Strauss has indicated that potatoes can be preserved for 2 years without freezing by irradiation with fission products and that this irradiation can be accomplished for one-half cent per pound. It appears that a figure of $40 million can be postulated for the end of 1955 to include materials artificially irradiated (radioisotopes), materials resulting from fission (fission products), and radiation instruments.

The last figure in table 1 is $200 million for specialized equipment supply. There are various reasons for believing that the previous figure of $107 million must have about doubled. First of all, the $107 million figure was derived from a percentage of AEC purchasing, as between lumber, concrete, etc., which are not uniquely tied to atomic activity, and mechanical engineering equipment, electrical engineering equipment, and electronic equipment, etc., for which atomic energy has very pronounced implications. Since that time, there has been a decided shift away from construction expenditures toward expenditures for operation (e. g., operations were 41 percent of fiscal 1954 expenditures, but 77 percent of fiscal 1956 expenditures as budgeted). Operating expenditures are much less concerned with items like lumber and concrete. Further, the AEC has put increased emphasis on fixed-price competitive bidding as its experience has accumulated. Operational expenditure again is much more susceptible to fixed price buying (on which the seller can make a profit). For these reasons, it appears reasonable to believe that the portion of the $2 billion annual expenditure budgeted for the AEC which will be bought on a basis allowing a profit (excluding items included previously) will be at least $200 million.

In addition to the figures above totaling $840 million, there are many additional millions which are subject to profitmaking. One increment results from the large and growing business of treating uranium oxide to produce uranium metal and uranium salts. Another increment results from nongovernmental expenditures for research reactors which now run to several millions annually. In addition, it is known that the Navy has budgeted funds for at least five atomic submarines in addition to the *Nautilus*, and some of the reactor portion of these submarines will be bought on a basis allowing profit to the seller. If a billion dollar private atomic industry is not here by the end of 1955, it certainly should be here by the end of 1956. It may well be here now.

Finally, the recent competitive contract whereby the Army will purchase a 10,000-kilowatt reactor for about $2 million means that atomic power is not so far away as many have supposed. Only a year ago, the phrase ran "a megabuck for a megawatt." This may be translated to $1,000 per kilowatt of capacity. The Army reactor will cost about $200 per kilowatt, and it is known that larger reactors can be built at a lower cost per kilowatt. Since coal-burning capacity costs around $80 per kilowatt of heat and the fuel cost of uranium fission is markedly less than in the case of combustion, it is apparent that very significant progress toward truly competitive atomic power has been made. A massive giant stirs and makes himself known though he is not fully visible. He is the multibillion dollar atomic power industry intimately related to all that has been discussed above, but basically just one of the several atomic giants which may be seen in the years to come.

Let us return to the financial world and see how atomic companies have fared, without implying that they have so fared solely because of their atomic activity. In table 2 figures are given on companies which our company has given greatest emphasis to. It should be noted that these were not selected as the stocks undergoing the greatest appreciation, i. e., with the advantage of hindsight.

TABLE 2.—*Capital appreciation of selected atomic companies*

	1953		Feb. 3, 1955, price	Percent increase over 1953 high
	Low	High		
Climax Molybdenum	33	43	62½	45
Vanadium Corp.	15	23	37⅛	61
Gunnar Mines	2.25	13.75	14	2
Foote Mineral	11	15⅛	48½	220
Lindsay Chemical	15	19	44⅞	135
Lithium Corp.	3⅝	6¼	29½	372
Homestake Mining	33	41	43½	6
Beckman Instruments	11	17	24	41
Consolidated Engineering	11	15	28½	90
General Dynamics	31	47	100⅛	111
Union Carbide	61	75	83	11
Vitro Corp.	5¾	7⅞	19¼	144
Westinghouse Electric	39	52	79⅛	52
Average				99
Dow Jones industrial average	255	294	406	38

In table 3 below more inclusive figures are given. These cover some 75 companies in the fields indicated and were computed as of October of 1954. Yields and price-earnings ratios vary widely as might be expected from the varying degree to which the companies involved are expected to benefit from atomic growth and from the varying periods of time before these companies will feel the impact of atomic growth.

TABLE 3.—*Price-earnings ratios and yields of atomic companies*

	Price-earnings ratio	Average yield
Raw materials:		
Uranium mining:		*Percent*
United States	14.1	4.3
Canada		
Africa	19.5	4.8
Uranium processing	20.0	2.6
By-product uranium	15.7	4.0
Lithium, thorium, zirconium, beryllium	30.9	2.2
Radioactive materials and radiation instruments	37.5	.9
Suppliers of special equipment	9.3	5.0
Atomic Energy Commission contractors	17.0	3.3
Application of atomic power	10.7	6.0
Diversified atomic activities	24.6	2.3

It appears evident that very substantial financing of the atomic industry will be necessary in coming years. The usual sources of new capital will undoubtedly be made available as the situation further crystallizes and intermediate obstacles are overcome. In the meantime, the public has demonstrated its faith in the future of the atom. Both large and small investors have shown their willingness to back up the new capital sources with the huge amount of liquid savings they hold throughout this Nation.

Great emphasis should continue to be put on Government-sponsored technical development. However, as this development proceeds, and we may hope accelerates, the procedures to allow private industry to apply its energy and ingenuity must also be developed. Passage of the act and the newly established market for plutonium and U–233 are important milestones. The advance of

the variegated atomic frontier will be proportional to the incentives stimulating that advance. The uranium industry has shown how private enterprise can perform an atomic job when it is allowed to. Subject always to the paramount controls necessary to the national security, the uranium industry should serve as a model for the other phases of the atomic industry. In this fashion, the infant giant will mature most rapidly and in a manner consonant with the American tradition of freedom The fundamental basis for free enterprise in the atomic arena is simply that the cost to the American public of atomic profits will pale into insignificance when compared with the savings to the American people which will arise from the energizing effect of these same profits.

Chairman ANDERSON. We thank you very much, Mr. Steers.

We will adjourn at this time.

(Thereupon at 4:45 p. m., Tuesday, February 8, 1955, a recess was taken until Wednesday, February 9, 1955, at 10 a. m.)

DEVELOPMENT, GROWTH, AND STATE OF THE ATOMIC ENERGY INDUSTRY

WEDNESDAY, FEBRUARY 9, 1955

CONGRESS OF THE UNITED STATES,
JOINT COMMITTEE ON ATOMIC ENERGY,
Washington, D. C.

The Joint Committee met at 2 p. m., pursuant to adjournment, in room P–63, the Capitol, Senator Clinton P. Anderson (chairman of the Joint Committee) presiding.

Present: Senators Anderson (chairman), Pastore, Jackson, Gore, and Millikin; and Representatives Durham, Holifield, Dempsey, Cole, and Patterson.

Present also: Corbin C. Allardice, executive director; George Norris, Jr., counsel to the Joint Committee; and Walter A. Hamilton, of the professional staff of the Joint Committee.

Chairman ANDERSON. The committee will be in order.

The announcement has been made to the press that the hearing on the matter of the confirmation of Von Neumann will be at 2 o'clock Tuesday, March 8, in the old Supreme Court chamber of the Capitol; this room here. In case anybody would not hear this notice otherwise, this is an additional notice on it.

The first item I have is a letter from the Chairman of the Atomic Energy Commission, dated February 9, reading:

> I have just received the transcript of Commissioner Murray's testimony on yesterday. A hasty perusal discloses a number of points on which I feel that your committee should be correctly informed besides the one that was brought to my attention yesterday afternoon, involving the transactions at a meeting of the Commission on the morning of February 1. On this single point I had intended sending a letter, but on cursory reading of the transcript, I believe this would be insufficient.
>
> Therefore, I request the privilege of appearing before your committee to testify on these subjects and to be questioned on them to the extent that the members of the committee may desire, and I would suggest that if you can appoint tomorrow for the purpose, the interval would give me some opportunity to study yesterday's testimony with sufficient care to be able to respond to questions based upon it.
>
> Sincerely yours,
>
> LEWIS L. STRAUSS.

I would be hopeful that we could complete these hearings without a long interruption, but I feel the Chairman of the Commission has a right to be heard and we will hear him at 1:30 tomorrow afternoon, running the meeting a half hour earlier than the ordinary schedule in the hope that we may be able to resume the scheduled witnesses soon after the appointed hour of 2 o'clock.

I make that statement now so that members of the committee and others may know that Admiral Strauss will be here at 1:30 tomorrow afternoon.

We will start the proceedings and I am happy to welcome an old friend, Mr. Biemiller, for his testimony at this time.

Mr. Biemiller, will you state your name and the organization that you represent?

STATEMENT OF ANDREW J. BIEMILLER, MEMBER, NATIONAL LEGISLATIVE COMMITTEE, AMERICAN FEDERATION OF LABOR

Mr. BIEMILLER. Thank you, Mr. Chairman.

Chairman ANDERSON. I do want to say in advance that I hope your testimony will be on this point of the development, state, and progress, and industrial application of atomic energy. We would be glad to hear you at any time on any subject, but the testimony yesterday was not exactly on them, and I did not want to appear that I was picking on a particular witness. I want to remind them all that that is the subject.

Mr. BIEMILLER. Thank you, Mr. Chairman.

My name is Andrew J. Biemiller. I am a member of the national legislative committee of the American Federation of Labor, with offices at 901 Massachusetts Avenue NW., Washington, D. C.

I appreciate this opportunity to appear on behalf of the American Federation of Labor to present these observations on the conduct of the atomic energy program. The future well-being of our 10 million members, their families, the Nation, and indeed the entire world, depends greatly on our country's development of atomic energy for military and peaceful purposes.

Twice before I have had the pleasure of appearing before the Joint Committee. Since my appearance last May, the American Federation of Labor has appointed, in recognition of our vital interest in atomic and nuclear development, a permanent committee on atomic energy. Through this committee, the A. F. of L. will keep abreast of developments to inform its members, determine needs, and recommend training for skilled manpower, provide recommendations to serve the public interest, and cooperate with the Atomic Energy Commission, this Joint Committee, and industry for these objectives.

May I also point out that numerous international unions affiliated with the A. F. of L. have established their own working committees on atomic energy to study its effect on their particular membership. These committees will cordinate their activities with the A. F. of L. committee.

We believe that the strengthening of the Nation's stock of atomic and other nuclear weapons must be given full support to deter, and to equip us against Communist aggression. But we are also deeply concerned that the enormous potential for good in the nonmilitary use of the atom be realized as rapidly, as equitably, and as fully as possible.

In these brief remarks, I wish to devote primary attention to the nonmilitary phase of atomic energy, particularly in the basic areas of (1) private participation in the peacetime application of atomic energy, and (2) the information and consultation aspects of the program.

The American Federation of Labor has sought the participation of private enterprise in the development of peaceful uses of atomic energy. The public interest can better be served by drawing upon the talents, creative vigor, and traditions of our private enterprise system than by relying on a continuing Government monopoly in this field.

But, as we have repeatedly emphasized, the transition from exclusive Government control to a Government-private enterprise relationship must be governed by several fundamental principles. Thus, national security must be protected and the public interest must be of paramount concern.

The participation by private industry must be on a fair and fully competitive basis, with equal access provided to technical information, resources, and opportunities. No business or segment of private industry should be permitted to gain monopoly control over any aspect of the use of atomic energy. The potential benefits to the public of private enterprise and competition in the application of atomic energy can be assured only if the private activity is kept truly competitive.

The Atomic Energy Act of 1954 was designed to encourage participation by private industry. Technological advances have made widespread private participation in the atomic energy field feasible. We are especially concerned that, in getting the program for private activity underway, particular care be exercised in the initial stages to shape its future course to assure that private activity flourishes and functions in the public interest.

It is still too early, and not enough information has been made public, for us to assess clearly how this private participation is progressing as a result of the 1954 act. We also do not yet know, and have not had an opportunity to express our views on the details of the administrative regulations which will play so important a role in the private participation.

Serious disagreements are evident on several points, however. The pace at which peacetime development should be opened to private business is one. How much aid the Government should continue to provide to private enterprise in this field is another. And the degree of control to be retained by the Government is a third. It appears to us that the middle ground is the most sound in each of these areas.

On the basic problem, the speed with which private industry is to become active, we can see an understandable reluctance in some quarters of the Atomic Energy Commission structure to release the peacetime application baby nurtured by the Government to the strange hands of private corporations. But this possessive instinct should not be permitted to obstruct encouragement and rapid expansion of private activity.

But we also must not allow the mistaken assumption, at the other extreme, that the new public policy is to get the Government out of this field lock, stock, and barrel. Our Government technicians can and should continue to contribute substantially to the advances in peaceful application of the atom.

As we see it, private industry should be permitted and encouraged to become active as rapidly as is consistent with the goal of genuine competition and as rapidly as it demonstrates a willingness and ability to assume reasonable risk and responsibility.

We are heartened to note the wide interest being shown by industrial firms. Actually, with the vigor and initiative of American industry and the vast prizes in store for the Nation in nuclear progress, it is only natural that so many firms are interested. The trick is to translate the interest into activity and to encourage the smaller as well as the largest firms to participate beyond the educational and exploratory stages.

On the second key problem, the degree of Government aid to participating firms, we think it proper and necessary that the Government provide substantial financial and technical assistance.

Without such aid, the threat of dangerous industrial concentration and monopoly control would be increased, for only a relatively few giant companies could draw upon the resources necessary for major projects. Continuing Government aid is required to assure broadened participation in peacetime development.

Yet this obligation of the Government should not be taken to mean that the Government should automatically assume all or almost all of the financial burden. Industry should bear some reasonable share. The "free" in "free enterprise" should not be perverted to mean that industry is free to profit from atomic energy without risk or expense.

On the third question, the control to be exercised by the Government, it is evident that certain types of controls are necessary. National security requires that the Government retain final control of nuclear material and production facilities. And the Government must have the authority to prescribe and enforce standards of secrecy and safety.

The licensing provisions of the new Atomic Energy Act probably can be applied to meet these needs of the national welfare. There is a real danger, however, that in efforts to adapt the licensing regulations to the views presented by particular industry groups, the Commission may abdicate some of its responsibility to retain controls required by the broader public interest. It is for this reason that, as I will note later, we are so concerned that the regulations be drafted with wider participation of different interested groups than now appears contemplated by the Commission.

The Government must also retain and exercise the authority to assure that private activity remains genuinely competitive. The patent provisions of the 1954 act are extremely important in this respect. They empower the Atomic Energy Commission to open new inventions in the field to all.

A company which invents a new technique in this field does not have an absolute right to an exclusive patent monopoly. Under the act the Commission can arrange for compensation to the inventing company for its new technique. These compensation provisions protect the special interest of the inventing company and amply reward it for its successful creative efforts. The provisions can and should be applied to prevent any individual corporation from gaining a patent monopoly of some significant phase of atomic development.

We have heard the view that normal patent procedures, without the limitations of the act, would tend to give greater encouragement to private initiative and that a company which would gain an exclusive patent right is more likely to seek new techniques.

But companies which have participated in research and development projects under contracts with the Atomic Energy Commission

have gained the benefit of special knowledge and experience at relatively little or no expense. It would hardly be equitable or in the spirit of our traditions of fair play and equal opportunity to permit them to capitalize on this advantage over newcomers. These insiders have enough advantage without the further advantage of exclusive patent rights.

On balance, therefore, the minor deterrent to initiative which may be involved in Government cross-licensing of new techniques, in place of exclusive patent rights, is more than outweighed by the need for and justice of keeping important new information in the public domain.

There is another all-important consideration in the question of Government control. By the end of this fiscal year, more than $13 billion will have been spent by the Government on atomic energy. The knowledge and material which had been accumulated is and should remain public property. In opening peacetime development to private business, the Government must retain sufficient authority to make certain that the fruits of this huge public investment are not given or frittered away but are rather used to provide the public with the maximum return on its expenditures.

Our goal should not be merely the commercial utilization of the atom, but its beneficial utilization for all citizens. We cannot accept the unwholesomely greedy motion that the Government should pay the costs until technology had progressed to make atomic powerplants economically competitive, at which point industry can step in to reap the fruits.

We believe that, as commercial power from atomic energy becomes economically practical, the Government must follow through on its responsibility to have it produced and distributed to consumers at the lowest possible rate in keeping with sound business principle.

For a program so fraught with significance for our Nation's future, the development of industrial participation in private uses of atomic energy has rapidly taken shape with surprisingly and dangerously little close scrutiny by the public.

The Atomic Energy Commission is obligated to security, not secrecy. We do not wish undue risk to the national security, but it is hard to believe that security actually requires so much guarded secrecy on peacetime development. It may be best in security matters to err on the side of caution, but this dictum should not be accepted as a handy excuse from those who do not wish to be bothered with the need for informing the public.

Censorship as a way of life is alien to our traditions and future welfare. Its justification some years ago should not warrant unquestioned extension to today. Its justification for military purposes should not excuse automatic extension to nonmilitary areas. It should be minimized to the fullest extent possible.

The Commission should step up its snail's pace in declassifying technical information. Many technicians believe the classification standards have been too stringent and are concerned that overly tight control may inhibit technical progress.

Equally important, the public as a whole must be given more light. Nontechnical phases of progress and problems should be publicized more widely. Most technical information can be presented in simplified descriptions for broader public understanding. These obliga-

tions are not met adequately by occasional speeches by the Commissioners or their staff. The Commission's public reports to the joint committee help fill the gap, but they do not alone make up for the lack of a continuing broad and detailed public-information program.

Interested groups, other than those representing particular industries or companies, have not been sufficiently encouraged or invited to participate in the molding of basic policies on commercial development of the atom. And they have been given precious little opportunity to contribute at the stages of policy formation where their views might have the most value. Advance consultation has been limited to representatives of industrial groups, with public expression invited only after policy pronouncements have been completed. It is questionable whether this adequately protects the public interest.

The Commission has an obligation to provide the knowledge necessary for the most informed public expression. It should make available not only information on what it had decided to do but information on background, problems, and alternatives—sufficiently in advance and in sufficient detail—to permit interested groups to make their maximum contribution.

The American Federation of Labor believes there is a particular need for the establishment of a statutory Labor-Management Advisory Committee in the atomic field to serve several purposes. Such an advisory committee could serve as a continuing focal point for channeling public expression on basic policy matters. It would serve to provide the Atomic Energy Commission with broad-based policy recommendations on matters which cannot be revealed fully to the general public.

The expert advisory committee is required to meet the variety of special labor relations, manpower, and working-condition problems in atomic industry. These include such complex matters as (1) collective bargaining processes and obligations in an industry so closely linked to the national welfare, (2) the difficulties posed by on-the-job security regulations, (3) the need for retraining and developing an adequate supply of competent and cooperative skilled labor, and (4) the resolution of health and safety problems arising in atomic operations.

Additional problems in which organized labor has a crucial stake arise in the application of the differing State workmen's compensation laws to disabilities associated with atomic employment.

I should note that, as far as the advisory committee's manpower functions are concerned, the American Federation of Labor has established a committee on cooperative education, which is already working in conjunction with several universities on plans to permit students to obtain an engineering degree and complete their apprenticeship in some craft at the same time. We believe that this would create an opportunity for more able and bright young Americans to obtain an engineering education and be of greater value to their country.

Mr. Chairman, may I ask consent to add at the end of my testimony two articles by President Durkin of the United Association of Plumbers and Steamfitters.

Chairman ANDERSON. Yes, without exception, that will be added to the end of your remarks.

(The information referred to will be found on p. 332.)

Mr. BIEMILLER. We hope the committee will see fit to report legislation to create a labor-management advisory committee to bring our best brains and experience to the service of the Atomic Energy Commission.

Chairman ANDERSON. May I stop you there merely to say that this matter was considered, as you know, when the law was under study and the thought was we ought to do something with it at that time and then thought it required some additional study.

Mr. BIEMILLER. Report on significance of peaceful applications: Section 7 (b) of the original Atomic Energy Act of 1946 required the Commission to prepare a report on the "social, political, economic, and international effects" of the nonmilitary use of atomic energy when such use was "sufficiently developed to be of practical value." We urged that this report be submitted before the revision of the act in 1954. The Commission never filed it. We believe it has been a mistake to proceed as far as we have without such a detailed and comprehensive report from the experts on the Commission staff.

The requirement for the report was eliminated in the 1954 act, presumably on the ground that, with legislative revision accomplished, the report was no longer necessary. The need has now increased rather than diminished, however. The complexity and significance of atomic development demand an authoritative public report on its implications and the extent to which social and economic dislocations may follow on the heels of its widespread introduction in our peacetime economy. The Atomic Energy Commission, as the official Government agency and the only body with the resources and full access to all information in this area, should provide it. It is difficult to understand why the Commission evaded the duty to provide it. We urge the Joint Committee to call for such a report from the Commission as promptly as possible.

I have some brief comments on several other aspects of our atomic development program. We have been greatly encouraged by the reports of progress and promising results in atomic medical research. The manner in which unfolding knowledge of the atom is being applied in the battle against man's illnesses is dramatic evidence of the force for good in the atom. We trust that the research in use of radioactive materials to help conquer disease will be pressed forward as rapidly as possible.

We can all take pride in the rapidity with which the byproducts of atomic research are already being put to so many other practical uses. The use of radioactivity to preserve food is particularly noteworthy and holds out the hope that we may be able more effectively to cope with the world's food problems and overcome the perversity of feast-and-famine cycles.

There is an increasing variety of applications in the industrial chemicals field and a growing assortment of uses in industrial measurement and quality control. These are but advance hints of the many other wonders and benefits the scientists and technicians assure us are to come from the increasing discovery and application of the atom's mysteries. We hope that the attention focused so largely on the development of atomic electric power will not blunt the important forward strides possible in all these areas.

International cooperation in the exchange of technical and medical atomic knowledge also requires major emphasis. We have much to

gain in a two-way exchange. Our allies have apparently developed techniques which would be helpful here. But more important, if underdeveloped countries can be aided to develop their own atomic power, medical, and industrial programs and thereby improve their living standards, the forces for a more prosperous and peaceful world will have been materially bolstered.

Our neglected civilian defense sorely needs increased attention. It is our belief that if the American people are more fully alerted to the destructive power of atomic weapons and to the danger of radioactive fallout upon the use of such weapons, they would support and insist on a more realistic program of civil defense. We urge that the committee contribute to the steps necessary in this direction.

I have tried to sketch, within the limits of the information at our command, the directions in which the atomic program should be influenced. We earnestly hope that the Joint Committee will provide the stimulus and balanced sense of direction necessary to assure that this program fulfills its promise of a greatly enriched life of peace for all our people in this generation.

Mr. Chairman, I thank you for the opportunity to present these views of the American Federation of Labor.

Chairman ANDERSON. Thank you, Mr. Biemiller.

Mr. Durham, do you have any questions?

Representative DURHAM. I have no questions. You have made an excellent statement, Mr. Biemiller.

Chairman ANDERSON. Senator Pastore?

Senator PASTORE. That is exactly the way I feel, too.

Mr. BIEMILLER. Thank you, Senator.

Chairman ANDERSON. Mr. Holifield?

Representative HOLIFIELD. Mr. Biemiller, I arrived unfortunately after you started your testimony and did not have a chance to read it all. But speaking in regard to section 7 (b) on page 7, as you probably know I was one of those who vigorously urged that the Commission give us this 7 (b) report. I also thought that the so-called McMahon Act required that before an extensive revision of the act in order to enlighten the Congress, and the committee, and the public regarding the status of the atomic-energy program which the revision of the act should accomplish.

This was never given and we had to go ahead in some instances blindly and in most instances which the committee had which the public did not have, and we tried to do the best we could. You see, one of the reasons is that the report was eliminated in the act of 1954. That is true. We did place in the act a requirement of a report from the Atomic Energy Commission on the status of the act within the first 60 days. We are now fulfilling that statutory obligation.

As to the completeness of that report, it is obvious that a couple of weeks of hearings cannot encompass the whole subject.

The broad social and economic impact of a vigorous program has not yet been given to the people. That is, the effects of it. I agree with you that the Commission should furnish us a broader analysis of the prospective effect of it than they have given us in the past. I think that is important.

I know that there has been some legislation introduced to set up a commission to study this matter. Certainly if this is going to have the effect upon the future that we think it will have, it is necessary

for us to know something about it, which only a broad study could bring.

Mr. BIEMILLER. May I note at this point, Mr. Holifield, that in the testimony which I presented in May of last year, not only you, but also Congressmen Hinshaw and Van Zandt commented that they also felt that there was a need for this kind of report.

Representative HOLIFIELD. That is right.

Mr. BIEMILLER. I want to emphasize as strongly as I know how that it is the considered opinion of the A. F. of L. permanent committee on atomic energy that there is still a need for this kind of report. We feel furthermore that while we are aware of the fact that various private groups are trying to get such information together, including our own committee, that the basic report will have to come from the Commission itself. Only it has the knowledge available to make such a report. We hope that the joint committee will see fit to endeavor to get such a report made.

Representative HOLIFIELD. Your comment on page 4 on the control of patent rights, I must say I agree with. You are aware, of course, that many times in American industry the exclusive control of patents has resulted in restricted use rather than in widespread use of the techniques evolved, are you not?

Mr. BIEMILLER. That is one of the fears we have.

Representative HOLIFIELD. You are aware of the fact that without naming them, practically all of our great corporations that are now in the atomic-energy program have been the recipient of suits filed against them for antitrust violations, for restrictive holding back of patents, and for engaging in cartel operations with international companies, are you not?

Mr. BIEMILLER. We have noted with alarm that such cases have been filed. We have also noted that various congressional committees have called attention to this situation from time to time.

Representative HOLIFIELD. I went over a list of the antitrust suits this morning and I find, for instance, that the modern type of incandescent bulb was withheld from the market for several years and only released as the result of an antitrust suit by the Department of Justice against the firms that were engaged in producing them. That is, the old type, which was less efficient, which cost more and which used more electricity. It was only the result of an antitrust suit by the Department of Justice that the modern incandescent bulb was made available.

There is a danger that if the patent rights are not watched in this period of development—this next 5 or 6 years of development—that same type of action for the selfish good of some particular corporation might not again be exercised.

Mr. BIEMILLER. Quite so.

Representative HOLIFIELD. You refer, on page 3, to the necessity of encouraging smaller as well as larger firms to participate beyond the educational and exploratory stage.

As a matter of fact, the policy was adopted by the Commission when it was first set up of dealing with only the largest companies. This was done—and I am not particularly criticizing it at this time—because of the necessity of getting on with weapon production. But now that necessity is no longer as urgent as it was in those early days and as we turn to the industrial and peacetime application of these

particular things, you feel, as I understand it, that a greater opportunity should be given to small firms to participate?

Mr. BIEMILLER. You will recall, Mr. Holifield, that in previous testimony I have had the privilege to present on behalf of the A. F. of L. before the joint committee, we have emphasized this fact very strongly. We want to again bring to the attention of the joint committee our very strong feeling that every effort should be made to devise techniques, regulations, and any other devices necessary to permit small firms to participate fully in the peacetime development of atomic energy.

Representative HOLIFIELD. Have you studied this present proposal of the Atomic Energy Commission to call an April 1 deadline on applications to enter the so-called atomic reactor development program?

Mr. BIEMILLER. We have observed the matter. We see no reason for the cutoff date.

Representative HOLIFIELD. Is it not true that if wide participation in this program is obtained that the very fact of setting an April 1 deadline—which I call an April Fool's deadline—will work in such a way that it will preclude smaller companies who have not had access through these study group arrangements to the knowledge and to the time required for Q clearances and all that sort of thing; will work against the smaller companies and will work to the advantage of those corporations who are now embodied in these various study groups?

Mr. BIEMILLER. We should be inclined to concur with that statement. May I add this further suggestion: We are particularly concerned about those smaller corporations and companies which may not have had up to date a direct interest in the current study groups, but which are now realizing that their normal economic activity could be displaced or altered materially by the peacetime use of atomic energy and should be given an opportunity to revamp their participation in the American economic system, so that they may find a way of adapting their normal processes to the peacetime use of atomic energy.

Representative HOLIFIELD. Thank you very much. That is all, Mr. Chairman.

Chairman ANDERSON. Mr. Cole?

Representative COLE. Going back to your discussion with respect to your recommendation of the Commission's report, I think you should have in mind that when the committee wrote into the law the requirement that each year the committee would hold public hearings on the development in this program was for the very purpose of accomplishing just what you said the Commission should do. That being so, it seems unnecessary for the Commission to make additional reports because that is what these hearings are being held for currently.

Mr. BIEMILLER. Mr. Cole, may I observe that we are naturally very pleased that the joint committee in its wisdom saw fit to make these hearings mandatory. We think that is a commendable step. We are glad it was taken. But we still have not seen any report which deals directly with the impact upon our economy. We think that it is possible that such a report be made.

That may be, as you suggest, a question of negligence on the part of the Commission, but we would like to see a thoroughgoing report projecting ahead the impact of the peacetime use of atomic energy.

We are not necessarily asking you to rewrite a 7 (b) because we realize that these hearings can serve the basic purpose, as you state. But why does not the Commission attempt to project an analysis of the impact of the use of atomic energy?

Representative COLE. I fancy it is because the Commission realizes its incapacity to gaze into the crystal ball of atomic future and arrive at any clearcut picture as to what this is going to entail. The only way they can forecast the future is by measuring it with the experience of the immediate past and the current experience.

I would imagine that as time goes along with these annual hearings the Commission would at those times be in a better position to indicate what it expects will be the impact of this program on our social and economic system.

Mr. BIEMILLER. Mr. Cole, we note from time to time that some of the Commissioners make statements in which they do project themselves into future predictions.

If I recall correctly, for instance, the Chairman of the Commission once stated that the time was not too far off when you would not even bother to meter the electric energy that would come from atomic production. If this is true we would like to have some kind of authoritative statement so that we can make the proper readjustment of the training of skills and the developments of industrial processes that would result from such a situation.

Representative COLE. You have indicated your apprehension that the few big companies which have been engaged in this program so far for the Government through its contracts with the Commission might be in a position to crowd out smaller companies from enjoying a similar participation.

I am sure you are aware of the fact that already the number of companies presently participating in the program is not what you can count on the fingers of your hand, but in the several hundreds of companies. I think it is 1,500 or 2,000 companies, big and small, that are presently engaged in the program.

I do not see anything in the present picture that would indicate that there is any trend or a policy of the Commission to crowd out small companies, but rather the contrary appears to be true.

Mr. BIEMILLER. I think there has been a healthy development in the past several months to extend participation. I would agree. But I am sure—obviously you have more information on this score than is available to us—that there was at one stage of the game a very serious question of a comparatively small number of companies who had the inside track and who, as a result of the know-how that they obtained from an almost exclusive participation in the program, could have gotten a tremendous jump on smaller companies that had not previously been in the program.

We hope that the tendency to include more and more companies will be given the blessing of this joint committee, as we know it has, and we have faith in this joint committee, that you will make every effort to retain the normal executive processes of the American industrial system in the development of the peacetime use of atomic energy.

Representative COLE. I am sure that is the philosophy of the members of the Joint Committee. As you have indicated, that is our desire. From my observation, I do not see any trend to the contrary.

Mr. BIEMILLER. We hope you are right.

Representative COLE. On this question of the April Fool's Day deadline, what deadline would you fix as being a reasonable one?

Mr. BIEMILLER. Does there have to be a deadline?

Representative COLE. If we are going to move on with this and get started, there must be a deadline for the initial stage. It has been testified that this April deadline does not preclude further proposals or invitations to industry to come in and submit proposals.

Mr. BIEMILLER. That, I think, Mr. Cole, is the important point. That there not be any deadline set that would preclude further companies coming into the development of the peacetime use of atomic energy.

Representative COLE. I think it was very clearly expressed by the Commission that fixing April 1 was only for the purpose of getting samething started, and that if there were other companies or groups who had proposals which they could not submit prior to April 1 that those would be considered by the Commission.

We have to start some time. There might be people who would reason that June 1 is too soon or August 1 is too soon. The Commission has indicated that if by April 1 there is not a considerable number of proposals indicating that insufficient time has been allowed that the Commission on its own would extend the period of time.

I do not consider that fixing an April 1 deadline which would constitute 3 months of opportunity for deliberation and consideration and study by companies is an arbitrary or unreasonable date, especially in view of the Commission's assurance that there is no finality about April 1. The program will be continued.

Mr. BIEMILLER. Mr. Cole, there are some obvious questions that arise. If a company desires to get into this program from a fresh start and the kind of participation they were seeking involved a request clearance they could not possibly qualify, could they, by April 1?

Representative COLE. But those people will be given an opportunity to present whatever they wish to present on May 1, June 1, or whenever they are in a position to make a presentation.

Mr. BIEMILLER. What we are asking is to make sure they do have that opportunity.

Representative COLE. I do not see anything in the picture that would indicate otherwise.

Representative HOLIFIELD. Would my colleague yield on that point?

Representative COLE. Yes.

Representative HOLIFIELD. It seems to me that they might well be precluded because there is a certain number of reactor-development programs, and if the Commission grants in certain types of reactors contracts to those who are in the study groups now and are qualified to make offers, and pending that granting they also allocate certain research and development funds, which the law allows them to allocate from a stipulated budget for that purpose at this time, it might be well that latecomers would not have the opportunity either to get into that type of reactor because there were already funds committed to it, nor would they be allowed to have access to funds because the funds would have been already committed.

So from that standpoint, I differ with my colleague respectfully that the April 1 deadline might very well preclude consideration of others.

Representative COLE. If it were true, as Mr. Holifield has indicated, that the number of reactors in which people might become interested is a limited number, then, of course, his position is correct.

But that I do not understand to be the fact. I understand it to be that there is no limit on the number of types of reactors that can conceivably be adapted to this industrial purpose.

Mr. Holifield has indicated how about the limitation on funds? That is always a limitation no matter when you have a cutoff date. Certainly, if a proposal for a revolutionary reactor is submitted subsequent to April 1 and is of sufficient merit to justify additional expenditures of funds, I have no doubt but that the Commission would request those funds, and the funds would be granted.

Mr. BIEMILLER. May I observe in that respect that our desire is obvious that we hope this program will be kept as flexible as possible. I gather you concur in that general statement.

Representative COLE. Certainly.

Mr. BIEMILLER. I hope we will always be in agreement in that respect.

Representative COLE. I assure you of my desire to do likewise, that we can be in agreement always.

Thank you, Mr. Chairman.

Mr. BIEMILLER. Mr. Chairman, may I make one or two other observations?

First, may I say to Congressman Patterson that we were very pleased to note his interest in the development of a program to train more skilled people in this field without endorsing the detail of your bill, which we have not had an opportunity to analyze carefully.

We want to commend you for your basic interest in trying to evolve a means of training more skilled personnel in this field. We hope that we will have an opportunity to discuss with you and the other members of the Joint Committee our proposal for cooperative education, which we thing falls in the same general category that you are interested in.

I repeat, we are pleased to note the impetus that you have given to this area of scholarships and training and possibly a university, and so on, to train people in this area.

Representative PATTERSON. Thank you.

Mr. BIEMILLER. May I also say, Mr. Chairman, as Senator Anderson indicated before he unfortunately had to leave, we do hope that this Joint Committee will give the fullest possible consideration to this proposal which we have now made for the third time for a statutory advisory labor-management committee. We are convinced, as we have said, and I will not bore you with repetition of our arguments on this, that such a statutory committee could be of great benefit to the development of the atomic-energy program; it would help allay many suspicions developed in certain areas and could certainly work out some of the problems that this Joint Committee is more aware of than any other group of people in America.

We would welcome an opportunity at the appropriate time to sit down with any of the members of a special subcommittee, as you determine, to discuss the details of such a proposal.

Representative DURHAM (presiding). Thank you very much.

I think the committee is probably aware of the need, because we have had some experiences in dealing with these matters when we had very little assistance in trying to solve some of the labor-management problems.

In this study where you were talking about the report that was in the original act, as I recall, amplifying the statement that has been made before, this comittee felt that probably the best way to keep this information current was on the basis we are proceeding at the present time, that is, by holding open hearings.

Reports, after all, are good subjects for some people, but are not sometimes distributed as broadly as open hearings. I believe that was one of the thoughts in the minds of the committee. Of course, we established that in the act.

Chairman ANDERSON. Are there any other questions? If not, thank you very much, Mr. Biemiller.

Mr. BIEMILLER. Thank you, Mr. Chairman.

(The information referred to on p. 324 follows:)

[From the Journal of the United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry, January 1955]

REPORT FROM THE GENERAL PRESIDENT

(By Martin P. Durkin)

LABOR MEETS PROBLEMS OF THE ATOMIC AGE

Two events of the past month are of deep significance to the labor movement. Together they show the very real concern of the American Federation of Labor for the highest public good and for the welfare of the individual worker in the present period of rapid transition to the atomic age.

First, President George Meany organized the permanent committee on atomic energy of the American Federation of Labor. Second, he established a committee on cooperative education. These committees were called at the request of the recent Los Angeles convention of the American Federation of Labor. They resulted from resolutions introduced by President James A. Brownlow, of the metal trades department, and by your general president, both delegates of the United Association to the convention.

Perhaps no one would conclude from the names of these two committees that they are related to each other. Actually, they are very closely related. For they express a common purpose to apply the intelligence and resourcefulness of trade unions to solve pressing national problems of the day.

The permanent committee on atomic energy has a charter contained in the resolution creating it. The resolution charges the committee with the duty:

1. To keep abreast of atomic energy developments and fully inform the members of the American Federation of Labor;

2. To insure that the means used to develop atomic energy serves the best interests of the American people as workers, consumers, and citizens;

3. To undertake continuous study of the civilian and industrial uses of atomic energy;

4. To anticipate needs for skilled manpower in the peacetime use of atomic energy and to make training recommendations;

5. To cooperate with government and industry and to obtain a staff necessary to carry out committee functions.

The committee on cooperative education also finds the seed of its creation in problems of the atomic age. Its attention is directed toward one major manpower problem resulting from the shattering of the atom—and from the tremendous advances made in research in the fields of mechanics, heat, light, sound, electricity, and magnetism; that is, the problem of an ominous shortage in scientific and professional manpower, particularly in the field of engineering. This shortage occurs at the very time when Soviet Russia is graduating 50,000 trained engineers a year. In brief, the committee is charged with promoting plans of combined college education, under union scholarships, and apprentice training, under union supervision for needy and qualified students. At the end

of 5 years of working alternately in the college classroom and with the tools of his trade, the successful student would receive both his college diploma and his journeyman's card.

Cooperative education, already approved by several local unions of the United Association, is labor's method of contributing to the welfare of our Nation by conserving and developing our God-given resources of human talents and native intelligence. Due to action by the Los Angeles convention, cooperative plans have received the full endorsement and approval of the American Federation of Labor.

Now let us see what action the atomic energy committee and the cooperative education committee have taken in line with American Federation of Labor policy.

ATOMIC ENERGY COMMITTEE

On December 16, 1954, the atomic energy committee held its first meeting under the chairmanship of President Meany with the following members in attendance:
President Meany, American Federation of Labor
President James A. Brownlow, Metal Trades Department of Labor
General President Robert Byron, Sheet Metal Workers
General President William A. Calvin, Boilermakers
General President Martin P. Durkin, United Association
President Richard J. Gray, Building and Construction Trades Department
International President Al. J. Hayes, Machinists
International President Anthony E. Matz, Firemen and Oilers
General President J. Scott Milne, Electrical Workers
General President William L. McFetridge, Building Service Employees
General President Edward R. Moffet, Chemical Workers

After a thorough discussion, the atomic committee agreed upon several important steps in furtherance of its objectives.

First and foremost, the atomic committee agreed that each international union having representation shall select a staff member to work with the committee as well as with his own organization to carry on research, to inform his own organization of new developments and to anticipate and help to meet manpower training requirements. These staff representatives would serve under the general direction of a qualified staff director to be employed by the atomic committee. They would, in effect, constitute the research staff of the committee.

Second the atomic committee recognized its function to serve as a liaison with all organizations working in the atomic energy field and to affiliate with service organizations on atomic or nuclear energy which do not establish or recommend policy. In this way the committee may take advantage of all existing sources of information without appearing to commit our labor organizations or the American Federation of Labor to policies harmful to the public or to our own members.

The atomic energy committee will meet again just as soon as a working staff has been established to carry out its appointed tasks.

COMMITTEE ON COOPERATIVE EDUCATION

On the next day, December 17, 1954, the committee on cooperative education met with President Meany as chairman. The following are members of the committee:

President Meany, American Federation of Labor
General President Martin P. Durkin, United Association
General President Lee W. Minton, Glass Bottle Blowers
General President George M. Harrison, Railway Clerks
International President Al. J. Hayes, Machinists

First action of the education committee was to agree upon its primary function to promote cooperative education, particularly in engineering, by keeping international unions continuously and effectively informed of the need for scientists and engineers and the use of cooperative education to train them.

The education committee then considered and called for a full report on the shortages of scientific and professional manpower, as presented by an outstanding organization, the National Manpower Council. This council has its offices at Columbia University and is supported by the Ford Foundation. Its members are prominent business and professional men, teachers, labor leaders, and Govern-

ment officials. President Al. J. Hayes of the International Association of Machinists and President Jacob S. Potofsky of the Amalgamated Clothing Workers serve with distinction on the council.

After painstaking study, the National Manpower Council recently published a statement entitled "A Policy for Scientific and Professional Manpower." The council found serious existing shortages of engineers, physicists, and chemists. "One consequence," stated the council, "of the enormous strides taken in nuclear physics, electronics, and other fields in recent years has been the establishment of a higher demand for scientific personnel by industry. Just as technological progress has led to the greater use of engineers, so the practical application of scientific discoveries has increased the use of scientists by industry."

Yet, the council observed: "Today, less than half of those capable of acquiring a college degree enter college. About two-fifths of those who start college—many with superior ability—do not graduate. For every high-school graduate who eventually earns a doctoral degree, there are 25 others who have the intellectual ability to achieve that degree but do not.

"Because," the council continued, "there are so many more young men and women in the Nation capable of profiting from higher education than are currently obtaining it, future shortages can be guarded against by increasing the proportion of young men and women who graduate from college."

Among many other recommendations the council urged: "Scholarship and fellowship programs, supported by private and public funds, be maintained and expanded to help more young people of ability to acquire a higher education."

This is exactly where cooperative education and the work of the committee comes in. Our local unions in all of our craft organizations can further the Nation's welfare; can tap our human resources; can help our intelligent but needy young men and women; can build for management strong executive and professional staffs, who also have a warm understanding of unions and their problems; all by making cooperative college education available to apprentices.

Thirty-five colleges or universities have cooperative programs. The union can gain the good will of the community by making arrangements with one or more of these colleges to pay the engineering tuition of students who can also qualify as apprentices under the cooperative-education program.

[From the Journal of the United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry, September 1954]

REPORT FROM THE GENERAL PRESIDENT

(Martin P. Durkin)

AN EDUCATIONAL OPPORTUNITY IN ENGINEERING—THE AMERICAN WAY

The greatest "natural resource" of any nation is the native intelligence of its citizens. By "native intelligence" I mean the God-given ability to think. This ability is to be distinguished from education; education is simply training or use of intelligence. Education can be acquired, but intelligence is a precious gift which a person has or has not. Moreover, there is no method of predicting where intelligence will appear because it appears everywhere. Intelligence has been given by our Creator without regard to which side of the tracks the parents may dwell, without regard to social registers; without regard to wealth, position, or influence. From the poorest, most obscure parents have come geniuses who have made the world a better place in which to live.

But all too often, nations waste this most precious natural resource. Men, women, and children are allowed to go through their lives without ever getting an opportunity to use their native intelligence, simply because they have never had an opportunity to train that intelligence by the process of formal education.

Is this waste of intelligence true in America? Is there a vast reservoir of native intelligence which is allowed to go unused simply because educational opportunities are not available?

Let's look at the problem as it affects us in our daily work: engineering.

A competent authority—associated with the Scientific Manpower Commission— has stated that this country could place and profitably use tomorrow between 35,000 and 40,000 adequately trained engineers. But in the academic year 1952–1953 only 8,000 students began engineering training. Next year, it is estimated there may be some 17,500 trained engineers graduated—but the demand will be greater than 40,000.

In other words, as America enters the atomic age we are seriously handicapped in the peacetime uses of this great discovery simply because we are not taking positive steps to tap the reservoir of native intelligence which is everywhere in the Nation.

And what of the wartime uses of atomic energy?

Well, here we do have an answer. But it is an answer which does not come from America. This answer comes from Soviet Russia.

THE RUSSIAN SOVIET WAY

Next year Soviet Russia will graduate 50,000 trained engineers while we are graduating 17,500.

This year—and for 14 years in the past—Soviet Russia is tapping its reservoir of native intelligence. Millions of young workers are forced to take compulsory training, education, and advancement while working on the job. Under the title of the "Labor Reserve Training Program," millions of Communists are put in schools for engineers, scientists, and technicians. Some 450 universities and institutes give courses in higher education to workers while 20 institutions are devoted entirely to education by correspondence. In recent years, correspondence and night school students have accounted for 30 percent of the higher educational enrollment in the Soviet Union. The basic requirement for higher education is the Russian equivalent of a high school education and an entrance examination. Once a State-supported student has completed his course of study, he must work for at least 3 years in his field and is subject to criminal penalties for quitting without permission.

OUR WAY: THE AMERICAN WAY

No matter who disturbing these facts about the Soviet system of preparing for the atomic age—for war or for peace—the truth is that we in America are not abreast of our responsibilities. If we stop to think of the developments in the use of steam and electricity alone, then we can imagine what lies ahead as a consequence of the discovery of atomic energy. Without doubt the great names which will be on the pages of scientific history will belong to men who are not yet born. With equal certainty there are in this country today young men whose intelligence could produce engineering achievements which will benefit all mankind. But our problem is to provide a method of insuring that such intelligence will not be wasted for lack of an opportunity to train or educate this native ability.

You and I know the stumbling block which prevents our children from getting a higher education—we know what limits there are to stretching the dollars in our pay envelope. We know, too, that unless some new way is found college will be just as much beyond the reach of our children as it was for us.

But there is a "new way."

Concretely, let each local union select pairs of qualified applicants for apprentice training. Of each pair of apprentices who wish to go to college to be trained as engineers, one apprentice would actually go to college for one semester and the other would proceed with the work of an apprentice. At the end of the semester, the apprentices would change places. The apprentice who went to college would come back and work as an apprentice on the job; the other apprentice would then go to college. Each semester these two apprentices would "switch." Then at the end of five years—including summers as well as winters—an apprentice would receive both his certificate as a journeyman member of the United Association and his college diploma as a trained engineer from a fully accredited college or university.

In this way a young man would achieve two goals at the same time: he would become a craftsman in our industry and a properly trained engineer. Above all, he would be an engineer with some practical knowledge. He will have earned his own way through college.

Is this a practical solution to the problem facing America in the atomic age?

Well, this year some 35 outstanding universities and colleges throughout America offered this opportunity to young men. More to the point, some 31 of these colleges offered courses in mechanical engineering leading to a college degree and courses in 14 other branches of engineering were also available at particular colleges and universities. This plan of education is no "theory"; it is very much a fact.

Here, then, is an American way of providing an opportunity for qualified young men to demonstrate that "where there is a will, there is a way." There

is no compulsion by an all-powerful State, but there is full freedom to earn an education and to contribute to the well-being of America in time of peace and to her defense in time of war. This is the way of democracy which enables freemen to shape their lives without the domination or interference of a dictator.

CONCLUSION

The gravity of this problem of education in America cannot be over-emphasized. The situation is far beyond the stage of hoping to find some way by which our young people will be able to train themselves. We can no longer sit back and satisfy ourselves that America is a land of opportunity and that somehow individuals will reach their goals. We must take positive steps which will genuinely place opportunities within the reach of qualified young people.

Certainly, it is particularly fitting that the trade-union movement by whose efforts free public education became a reality in the 19th century, should now take the lead in establishing a way for ambitious young people to acquire a higher education. With respect to the field of engineering, there is every reason to expect that the local unions of the United Association will recognize the need for genuine leadership in promoting educational opportunities for able, young men who wish not only to become craftsmen of the United Association but also professional engineers in this branch of industry.

Above all, we of the United Association are second to no other group of Americans in our genuine desire to promote the well-being of our county in time of peace and to defend it to the utmost in time of peril. The successful operation of this plan to provide educational opportunities to qualified young people would be additional proof of the key role which the American trade-union movement plays in the history of the United States.

For all of these reasons, therefore, I urge every local union of the United Association to take the necessary steps toward putting this plan into prompt operation. The action required is neither complicated nor time-consuming.

First, each local union should accept the responsibility of paying the college tuition for the first pair of apprentices. The money earned by the apprentices while they work will enable him to meet the other costs of college.

Next, contact any accredited college of engineering in your area and arrange for the operation of the plan with the officials of the college. At the end of this article is listed the colleges and universities where the plan is already in operation. Since many students "go away" to college, the location of the college is not the important factor.

Next, contact the daily newspapers in the territory of the local union and state the nature of this educational plan. In addition, emphasize that this opportunity is open to any young men in the territory of the local union; that the selection of the winners will be made by the college or university where the engineering training is to be given; the basis of selection will be the two highest grades made by men taking college entrance examinations in the area who otherwise would be unable to pay their way to college. Finally, state that each year two additional men will be selected in the same manner and under the same conditions. Thus in 5 years there will be 10 apprentices attending college—1 pair for each year. You may be certain that the newspapers will be happy to cooperate with the local union making this real news available to all the young men in the territorial jurisdiction of the local.

Finally, I am sure that all across the Nation the contribution of the local unions of the United Association to the welfare of America will be fully recognized and appreciated.

LIST OF COLLEGES

Alabama Polytechnic Institute, Auburn
Los Angeles State College, Los Angeles, Calif.
University of California, Berkeley
University of California, Los Angeles
University of Denver, Denver, Colo.
University of Delaware, Newark
University of Florida, Gainesville
Stetson University, Deland, Fla.
Georgia Institute of Technology, Atlanta
University of Georgia, Athens
Bradley University, Peoria, Ill.
Illinois Institute of Technology, Chicago
Northwestern University, Evanston, Ill.

Evansville College, Evansville, Ind.
University of Louisville, Louisville, Ky.
Massachusetts Institute of Technology, Cambridge
Northeastern University, Boston, Mass.
University of Detroit, Detroit, Mich.
General Motors Institute, Flint, Mich.
University of Minnesota, Minneapolis
Cornell University, Ithaca, N. Y.
Rensselaer Polytechnic Institute, Troy, N. Y.
University of Akron, Akron, Ohio
Antioch College, Yellow Springs, Ohio
University of Cincinnati, Cincinnati, Ohio
Fenn College, Cleveland, Ohio
Drexel Institute of Technology, Philadelphia, Pa.
Lehigh University, Bethlehem, Pa.
St. Joseph's College, Philadelphia, Pa.
University of Pittsburgh, Pittsburgh, Pa.
University of Tennessee, Knoxville
University of Houston, Houston, Tex.
Southern Methodist University, Dallas, Tex.
Virginia Polytechnic Institute, Blacksburg
Marquette University, Milwaukee, Wis.

Chairman ANDERSON. The next witness is Mr. Jerry Voorhis.

It is a great pleasure to have you come before this committee.

When I came to the House of Representatives a long time ago, Mr. Voorhis and I had offices almost side by side. I can testify to your habit of working late.

STATEMENT OF JERRY VOORHIS, EXECUTIVE DIRECTOR OF THE COOPERATIVE LEAGUE OF THE UNITED STATES OF AMERICA

Mr. VOORHIS. Because you used to do the same thing, Mr. Chairman. I appreciate very much what you have said. I would only like to say that the difference between the chairman of the committee and myself was that his staying qualities were much greater than mine. I would like to compliment him on that fact.

It is a pleasure for me to come before this committee. I would like to say before I start, Mr. Chairman, that I do so with a profound sense of humility as I try to share for a few moments with this committee the great responsibilities which it holds.

I would like to say also before I start that what I have tried to do in this testimony is to present a point of view respecting broad policy. I present it because I sincerely and very deeply believe that in this rather awesome new age in which we find ourselves that these policies and approaches to this problem are the ones most likely to win both battles that we have to win, one of which is the battle for peace and the other one is a battle against the domination of the world by Communist dictatorship.

Mr. Chairman and gentlemen of the committee, with power goes responsibility. The greater the power, the more heavy and inexorable the responsibility.

Our responsibility in this hour is awesome, staggering. We find ourselves in possession of a new energy, a new power whose full might and scope we do not yet know. We have enough knowledge already, however, to realize that we are dealing with the very issue of life or death for man and that release of atomic energy by this generation is akin at least to the release of the latent power of God's universe itself.

Atomic energy can, devoted to beneficial, peaceful purposes transform the life of man in many ways and bring a new age of greater abundance and peace and hope than past generations have dared to dream of. Such a transformation will take time. No one knows how long a time. But few will doubt any longer that it can happen. It can happen if our generation discharges rightly its responsibility.

On the other hand, if we fail and if atomic energy is used in war it will most certainly destroy human civilization as we have known it. Such a victory would be purchased at the very least at the cost of the lives of half the people of one's own country, and there is increasing evidence now being given us that even those who might survive such a war would be so affected by radiation that they would be the pregenitors of a race of monsters. Further, the possibility at least exists that further development of these weapons by Russia or the United States will produce engines that could render the whole earth uninhabitable by life.

We are told now that the possibilities of radiation and its effect even for people who were not killed might be to so distort their make-up as to cause a different than human progeny to result.

It appears that there is a limit to the extent that man can go in upsetting the balance of nature as God made it, without suffering a frightful consequence of his own arrogance.

As long as atomic energy is the central factor in a worldwide armament race and pattern of international conflict all mankind must live from day to day under a dark shadow of impending ultimate doom.

The first responsibility, therefore, of any man, group of men, nation, or nation's citizens who take to themselves the right to possess this atomic power must be to devise and establish institutions and laws of universal application throughout the world which can guarantee mankind against a recurrence of war.

We hold in our hands a power capable, apparently, of doing great good to man, but capable, certainly, of doing incalculable evil.

Our one most imperative task is to create with other nations a system of universal worldwide law that can be enforced and that can deny to any nation within or without the Iron Curtain the unconscionable power to decide whether mankind as we have known it shall live or die. Unless we discharge this responsibility in some manner it matters comparatively little what else we, in this generation, may or may not do.

We all know, of course, that the only reason the United States develops atomic weapons is because we know the Russians are doing so and because we know that Russian superiority in these ultimate weapons would doom our country and the free world to a terrible serfdom under the despotic heel of communism.

But at most we can only excuse our atomic-weapons program on these grounds. We cannot excuse on any grounds whatsoever a failure to pursue, daily, relentlessly, with singleness of primary purpose the basic objective to which from time to time we have committed ourselves, the objective of rendering the atomic war impossible.

The Acheson-Lilienthal plan, the Baruch proposal, President Eisenhower's call for a system of foolproof disarmament, General MacArthur's recent speech, the resolution passed by the Senate in July 1953—all these have been original commitments toward fulfillment of our responsibility toward mankind.

But our followup has been poor in each case. And our moral leadership in the world is therefore clouded. Nor is our position nearly as strong a one as it could be. The reason is that we have not yet made unmistakably clear to other peoples that which we ourselves so well know, namely, that we are committed first and foremost to the cause of peace and that we accept the armament race with all its perils only because we must. We accept also whatever consequences may come in our resolution to prevent Communist domination.

A committee of the Illinois Manufacturers Association recently returned from a trip through Europe. In its report it stated with alarm that there was evidence that Russia was gaining in the race for the minds and confidence of the rank and file of European people, particularly in Italy and France.

This committee gave its remedy for this situation. It urged, and I quote:

> That the United States develop and vigorously advocate a comprehensive program for peace which can be easily understood by the people of all nations and which will place the Russians on the defensive and demonstrate clearly to all concerned, and particularly to the people of Europe, that the peaceful pretenses of the Russians are phony and insincere and that the United States is the real and dependable advocate of peace.

As I see it, this committee has put its finger squarely on the first thing we must do if we are to meet the responsibility that is ours and from which we cannot escape. If it is too late for a bold move of this kind on the part of our country, then it is too late to hope for a future for mankind. And we cannot believe that is the case.

Now what I have said thus far may be somewhat wide of the mark set by this distinguished committee for these hearings. But no one who pretends to any religious conviction whatever can fail to make some such testimony.

But I do not believe I am so far afield. For I believe that the constructive development of atomic energy for the benefit of mankind has a great deal to do with the prevention of the use of that frightening energy for human destruction.

I believe that in part the resolution of the present crisis in the world depends on the relative success of the free world, as contrasted with the totalitarian world, in building a quality of life that is good for all its people and I believe atomic energy can play a major role in this great enterprise.

But this can only happen if one simple principle guides all policies—policies of Congress, policies of the administration, policies of the Atomic Energy Commission.

That policy briefly stated is this: Atomic energy shall be developed, controlled, and distributed in such manner as to increase participation in the American system of economic freedom, to reverse the present trend toward monopoly and to make basic power and energy as abundant and as cheap as practicable throughout our economy and that of other free nations. I believe that kind of policy would have a dramatic and dynamic effect upon the other free nations of the world, incidentally.

I don't think the present policies of the Atomic Energy Commission nor some of the provisions of the Atomic Energy Act of 1954 are either calculated to bring about these results or in accord with this policy.

Atomic energy belongs by right of discovery and by right of purchase to the whole American people. I do not need to remind this distinguished committee of that fact. So far we, the whole people, have paid about $12 billion for atomic energy. We are paying more and more every year. It is inconceivable to me that anyone would suggest that this property right be violated.

When the MacMahon Act was passed this fact was recognized. It was also recognized that we confronted, as we will do, a brand new situation pregnant with undreamed of possibilities, fraught with terrible problems. It is a situation never before faced by any nation. For our Nation as a whole finds itself possessor of a great new resource which it as a nation has developed and which it is obligated to put to use for the benefit of the whole people. To meet this new situation a new type of agency was created. It was called the Atomic Energy Commission.

Mr. Chairman, may I just interpolate here by saying that it may be that in the balance of my testimony, I am going to appear to be asking too much of the Atomic Energy Commission. It is not in the way of attitude and policy, but in the way of things that it can logically be expected to accomplish and do. Maybe I am. Maybe there ought to be a subsidiary agency of some kind. Maybe some of the things that I feel need to be done in this field call for a different agency to do them, so that the Atomic Energy Commission could concentrate as a research and factfinding and control body. I just want to say I am conscious of this, but so far we haven't got another agency. Consequently, the things that I am going to advocate are given with reference to the Atomic Energy Commission.

The Atomic Energy Commission was created to be the trustee for the American people of the incalculable new resources which are theirs. It was created as an agency responsible to the people for dynamic development of this new resource in the interest of all the people, both for their defense from military attack and for the strengthening and expansion of their national economy. Above all, the Commission was expected to discharge its trusteeship in such a way as to cause atomic energy to become an instrument for the development of world peace.

In all its work the Atomic Energy Commission has been expected to keep the people of America fully informed of the progress of its stewardship. It was never conceived as a law unto itself. It was expected to report regularly and fully to the Congress as representatives of the people.

Only in part, it seems to me, has the Commission discharged its trusteeship as it was expected to do. It has, so far as a layman like myself can judge, carried forward a dynamic program in the development of atomic weapons for national defense. But it has, in my humble judgment, been inexcusably reluctant about telling the people the truth about the probable effects upon human life in general and the American people in particular of the weapons that have been devised.

For some reason, also, the Commission appears to be inexcusably reluctant about making full reports to the Congress about the progress of its trusteeship in the field of peacetime uses of atomic energy.

And, most serious of all, the Commission has apparently adopted a policy of not pushing forward the development of atomic power

or other peacetime uses in the dynamic manner that should be expected of it. Here I believe I do know the reason. I believe the reason is that the Commission as now constituted takes the general position that unless atomic energy can be handed over to private interest for development it had better not be developed at all. Mind you, I think it is better if it is developed by the private interests to the extent that is right and proper in all of the circumstances. But I think there are places where a public agent, as trustee of the general interest of the people ,has to act and act forthright and in dynamic fashion, as I have said.

This point of view was reflected in the action of the last Congress when in the Atomic Energy Act of 1954 it forbade the AEC to develop or sell any power at all except only that which is incidental to its research and experimental activities. Indeed it was only after a gallant and somewhat bitter fight that the advocates of progress in this all-important field were able to retain provisions in the bill authorizing and directing the Commission to carry on research and development activities relating to the generation of usable energy and demonstration of the practical value of large-scale atomic powerplants.

What we need is a clear set of objectives. And the first of these is, I think, the strengthening of our free economic system. How is that to be done? Basically, by extending the experience of responsible private ownership and participation in decision making to as many people as possible. This is the general objective of the Cooperative League for which I work, and for which I speak. Otherwise we would not conceive our primary task to be helping groups of people with little capital to enter business on their own account and at their own risk and thus to solve directly their economic problems instead of relying on Government or any other agency to do it for them.

Our second objective is related to the first one. It is to have a dynamic, constantly expanding economy, one in which new opportunities are constantly being opened up for more and more people and for more and more business enterprises, and one which comes closer and closer all the time to providing a really rich and full life for all worthy citizens. Such an abjective might once have been regarded as impractical and visionary. No longer is that the case. The most severe blow that could be struck for freedom and against communism and totalitarianism would be the realization of that sort of situation. I think it is hard for us to realize it is really possible, but I think that is one of the things we have to do.

A third objective, as I see it, should be reduction of our Federal debt and of the tax burden. I believe if right policies are pursued with respect to atomic energy it can contribute very substantially to this objective and do it without any danger to the more imperative necessity of maintaining a high level of economic activity in the country.

Now if any of these objectives are to be realized there are certain primary and basic prerequisites that must be provided. Among them are air, sunlight, and water. No one, I think, will suggest that any of these should be restricted in supply for any reason or out of deference to anybody. No one will suggest either that they should not be available to everyone at the least possible cost. We are in a frame of mind today to include highways also in this same category. And I

do not see how we can reasonably exclude basic power from the same classification as an absolute necessity of modern life and industry. Control over the power sources of a nation is equivalent to control over that nation's economic life. That has always been true to a degree, and today it is more true than ever before.

We live in what has properly been termed the power age. Everything we do—living in our homes; lighting our towns, our cities, our stores, our places of business; running our farms, operating our factories, making our transportation go—everything depends upon power.

If power is cheap and abundant, everybody benefits; the United States benefits. If power is scarce and expensive, everyone is hurt; the United States is hurt. And the blunt fact is that power has been made and is cheap and abundant only where an element of genuine yardstick competition has been injected into the industry, generally either by cooperatives or by public agencies. There is today no effective competition in the electric-power business except where it has been supplied by cooperatives or by public enterprise. Rates have been higher than they needed to be wherever they could be kept higher than they needed to be. Were this not true, cooperatives of inexperienced farmers could hardly have cut the cost of electricity in rural areas, in many cases, by as much as 50 percent. Were it not so the cost of electric power to its users would not have dropped from 2.76 cents a kilowatt-hour to 1.79 cents a kilowat-hour between 1932 and 1948, the first 16 years of an aggressive public-power program.

The heart of the controversy over atomic energy and over atomic-energy legislation and over the policies of the Atomic Energy Commission lies right here. On the one side are those who want to prevent power generated from atomic energy from becoming an effective competitive factor in the power business. On the other side are those who believe that abundant and cheap power is so essential to a dynamic economy in the United States that atomic energy should contribute as much as possible to that end.

May I say that from the colloquies that I was able to hear before I was called to the stand, I can see that every member of the committee belongs to the second group.

The story of the electrification of America's farms and rural areas will illustrate what I mean. Two decades ago less than 11 percent of America's farms had electricity. Today over 90 percent of them have it. And the rural electric cooperatives have done most of the job under a number of Secretaries of Agriculture administering the rural-electrification program, one of whom now sits as chairman of this committee.

But they have had to do it under the constant fire and opposition of the very people who now tell us they want the exclusive right to decide how much America's power supply is to be from this day forward. If the power companies were truly committed to the policy of an abundant supply of power for our country at the cheapest practicable cost they would have supported instead of opposing what the farmers of the country have been accomplishing over the past 20 years.

The job of rural electrification is not yet done. It won't be done until every American farm is served. It won't be done until every cooperative has paid off its indebtedness, as they are now proceeding to do, usually ahead of schedule.

But the job cannot be done if the cost of power is to be suddenly increased. And that is why the rural electric cooperatives as well as the Cooperative League are opposed to the Dixon-Yates contract. It is not because we favor public power over private power as such. If indeed it could be shown that the power could be more cheaply furnished by a private agency than by the TVA, we would take a different position. But there is no evidence to that effect. On the contrary Dixon-Yates says in effect that private control of power is so important that it must be had even at the expense of increasing the cost of power to the people of a whole area of the country and crippling the debt-paying capacity of every rural electric cooperative in that area. And that is too high and dangerous a price to pay.

It should be observed at this point that had the Atomic Energy Commission been properly concerned with the development of its byproduct energy into electric power it probably would not have been making such heavy demands upon TVA, and the Dixon-Yates controversy would never have arisen. This is the heart of the problem.

The development of atomic power can, in the course of time, provide a firmer and broader base for a genuinely dynamic and free economy than we have ever had in all history. No other kind of power has ever offered such a prospect. It appears to me that we know enough to safely forecast that atomically generated electric power could, in a compartively few years time, be distributed equitably to every corner of the Nation and to every element in the economy. Opportunities for small business might be much more nearly equalized with those of large business, a hope of which we have sometimes almost despaired. And a pattern of abundance could be set here in the United States which would offer so dynamic an alternative to Communist false promises that a tremendous blow might be struck for freedom and peace in the world.

But these results will not be achieved if the basic rights of the whole people to this energy and to its full development are violated. These results will not be achieved if the opportunity to develop and use atomic energy is restricted to a few powerful interests, by any means at all, or allowed to fall into monopolistic hands. Nor will these results be obtained unless the Atomic Energy Commission is committed to the achievement of these results.

No agency in history ever had more sobering responsibilities than the Atomic Energy Commission. And none ever faced a more challenging opportunity to add to mankind's welfare. But it will require, in my opinion, a more dynamic attitude on the Commission's part and a clearer directive from the Congress than that given in the Atomic Energy Act of 1954 if that opportunity is not to be lost.

The issue, as I said before, is simply this: Shall our policy be simply to bring atomic energy to contribute to making basic power as abundant and cheap as possible throughout our economy with maximum general public benefits or shall these desirable ends be pursued only if no presently established interests are disturbed and only if public rights are made secondary to private advantages.

There is only one right way to resolve that issue. How can it be done? By changing present law in certain respects, most of which were actually adopted by the United States last summer, but lost in conference.

Here are some of the changes I would propose:

1. The Atomic Energy Commission should be authorized and directed to develop atomic power on a yardstick basis in areas of power shortage and high power cost in the country.

2. Such power should be marketed through nonprofit distribution agencies to the extent that such are available to buy it. This, I think, was the substance of the Johnson amendment adopted by the Senate in 1954. Here may I say, maybe this isn't a thing that you want the Atomic Energy Commission to do. Maybe it ought to be another agency. But it ought to be a public agency that had a right to do this. That is, in areas of power shortage.

3. Prohibitions against the AEC selling or distributing electric energy except that which is purely incidental to research and development should be repealed.

4. Congress should make it mandatory upon the AEC to obtain an opinion from the Justice Department as to whether the granting of a license to utilize atomic energy will create or maintain a situation inconsistent with the antitrust laws. And if the opinion of the Justice Department is that such will be the case the Commission should be forbidden to grant such a license. In general the antitrust provisions of the original act should be restored.

5. Either the patent provisions of the original Atomic Energy Act should be restored or else the compulsory licensing provision of the present act should be extended for at least 10 years, and it should be made mandatory on AEC to declare patents affected by the public interest whenever they are essential to the utilization of fissionable material or atomic energy.

6. In order to make certain that the full benefits of atomic energy shall be available to all the people, who after all own it, and to all elements in our economy, the basic energy and all fissionable materials and all facilities such as reactors for producing fissionable materials or atomic energy should be the property of the United States. A system of leasing and licensing the use of such facilities and materials to competent and trustworthy applicants, big and little, corporate and cooperative, private and public, should be put into effect. Furthermore, the injunction upon the Commission contained in the original act "to encourage similar activities by as many licensees as possible" should be restored and insisted upon.

Contrast this proposal with the present situation. The President himself warned, in his message proposing atomic energy legislation, against the possibility of monopolistic control. Yet the AEC has recently fixed an April 1 deadline for the submission of proposals under the new reactor program. What such a deadline in effect means is that only the handful of very large companies which have been insiders with the Commission and have had access to information not generally available will be able to submit proposals by that time. Furthermore, some of these companies have been among the most frequent offenders against the antitrust laws.

Certainly it should be, as I have stated, an objective of this whole program to increase participation by as many businesses as practicable in this development, to broaden and strengthen economic freedom, and to reduce the danger of monopoly. But the way we are headed now we will, I fear, get opposite results. It would have been too bad to have given the manufacturers of buggies decisive control

over the development of the automobile industry. We ought not to make a similar mistake here.

One reason I have advocated that ownership of reactors continue in the United States is because I believe this will increase and broaden utilization of atomic energy and atomic-energy applications throughout our economy. Such use could then be licensed under circumstances that would contribute to freer competition and to lessening the grip of monopoly on some of our industries. Such use could then be an instrument of a truly American economic policy.

Furthermore, we are told that the present cost of plants feasible for atomic power production is so great that, thus far, not even the huge companies are ready to undertake construction of such plants unless a considerable share of the cost is borne, one way or another, by the taxpayers of the country. This seems to me to be manifest injustice. Why should 7-year offers to buy plutonium at prices significantly kept secret be made by AEC to these few favored giant concerns? And why should AEC offer to loan fissionable materials free of charge to some companies and not to others?

Again, the present law, I believe, allows the private ownership of even "breeder" reactors, that is, these that actually produce fissionable materials themselves. This will compel the United States to buy back those materials, presumably at negotiated prices, since present law requires that all fissionable materials be in United States ownership.

There are two different points of view abroad in the land. One of these is, I submit, the traditional American point of view. It holds that freedom is not an abstract conception, but an opportunity to act constructively in solving the problems of life and building a better life. This point of view holds that economic freedom must extend to all sorts and conditions of men and enterprise, that it must never be allowed to become the private prerogative of a few.

This point of view seeks only those measures from Government which will lay the groundwork and create the climate in which responsible ownership can be shared by a maximum percentage of the people and wherein genuine healthy competition can assure abundant production, economically determined pricing, as opposed to arbitrarily controlled pricing, and constant expansion of the economy as a whole. This point of view holds that monopoly is the death of freedom, that it must by every means be prevented, and that among the ways this can be done are three, among others. The first is sincere, vigorous enforcement of the antitrust laws. A second is the competition of cooperatives, which, being owned by the users of their services, can sometimes compete with monopolies when other forms of business canot. A third means to prevent monopoly is through public guaranty to all people and all enterprise of certain basic elements in production or distribution, at low cost.

We do this with water. We do not let anyone monopolize it. We do it with roads and waterways and all public carriers. We ought to do it with atomic energy. If we did it would be one of the greatest boons to economic freedom that has ever been given it. But we shall not do this if the people's property rights are violated or if a few are allowed to acquire exclusive patents on the latent energy of the universe itself.

Opposed to the foregoing point of view is one which is to my mind far more European than it is American in concept. For this point of view holds that freedom and power go together and are for those who can grasp them, though few, comparatively will be able to do so. This point of view holds that decision-making and effective control must gravitate more and more into the hands of these few and that, anyway, these are the most capable hands so power is best lodged with them. The opinion of those who hold this point of view is that bigness is a good not a bad thing, and that even if key industries in our country came under monopolistic control we should not worry because we will be well taken care of by the large flow of goods these monopolies will turn out and well entertained by the television programs they sponsor. If this point of view takes over our country we shall become a race of weaklings who have sold their birthright of freedom for a mess of gadgets.

And let us never forget that in the long run any nation will get far less socialization if it avoids overgreat concentration of power than it will get by a hands-off policy and the consequent growth of monopolistic cancers in its economic body. The whole economic history of Europe in recent years is illustration of that statement. I firmly believe that the general course I have here advocated will lead to far more private ownership and enterprise and a far more dynamic development that can be had by the course on which we generally embarked when the Atomic Energy Act of 1954 was passed and when the Atomic Energy Commission adopted its present attitude. The reason the United States of America is in much better shape today and has a more dynamic economy than the economies of Western Europe is because we are the only country in the world that ever had a set of antitrust laws. Even though they weren't effectively enforced altogether, they had considerable impact.

We need a commission committed to active dynamic development of peaceful uses of atomic energy either directly or through contract with private contractors. We need a commission eager to do the basic experimental and developmental work, including some actual yardstick power development in high cost and shortage areas.

We need a commission anxious to assure participation of all types of business enterprise in utilization and distribution of the benefits of atomic energy and atomic power. I believe it will take clear congressional directives to bring about this kind of a commission. If I am wrong about the Commission, I am glad. But I am impelled to give this testimony just the same.

We need, above all, to direct our efforts toward bringing about a situation where basic power available to agriculture, industry, business, and consumers in this country will be so abundant and cheap as to be comparable in availability to water and roads, and thus to transmit a level of economic activity such as has not before been considered possible.

And, if we will use a little vision, I think we can see the possibility at least that if the people's basic ownership rights are not violated the full development of the use and licensing of atomic energy might be a means of constructively balancing our Federal budget and even providing a sufficient surplus to reverse the present trend toward ever-increasing Federal debt.

The reason I say constructive balancing of the budget is because I agree with those in this and previous administrations who believe that a balanced, full-production economy is more important than a technically balanced Federal budget, desirable as that is.

But I firmly believe we can have both a balanced or better-than-balanced budget and a dynamic economy at the same time if we both guard and develop freely this great new resource in which the American people have made so heavy an investment.

These are historic days. Future generations are watching what we do. Rich civilizations have arisen before in the world's history, only to decay from within because all but a few of the people lost their opportunity for significant ownership and decision making. These civilizations—I can name them and so can you—died because they permitted concentration of irresponsible power to take place.

The decisions we are called upon to make today about atomic energy are fraught with meaning for the future far beyond our own poor vision. Let us be guided in these decisions by the admonition of a distinguished southern Senator, now deceased, who once advised a younger colleague, "When in doubt, do right." In these days of so much trouble, perplexity, and difficulty of decision, I imagine most of us would be doing right practically all the time if we followed the Senator's counsel.

The CHAIRMAN. Thank you, Mr. Voorhis.

I think on page 10, where you started listing the things that ought to be done to the act, you recognize that sometimes it is difficult to pass an act just exactly the way everyone would like to have it. Strenuous efforts, and very sincere, were made by all Members on both sides of the aisle to get the best kind of act we could get. Some of us failed in some of the things we wanted, but we still have a majority rule in the Congress, and it does not always work out perfectly as far as everyone is concerned.

Mr. VOORHIS. Of course not.

The CHAIRMAN. Are there any questions?

Senator HICKENLOOPER. You have presented a very interesting statement, Mr. Voorhis. There is only one phase that I would like to discuss with you.

You lay emphasis on the development of this act, for the purposes, among other things, of giving abundant and cheap power. Are you aware that in the cost of a delivered kilowatt-hour to an outlet, that is to where it is used, the fuel that goes into the production of that kilowatt is substantially less than 10 percent of the delivered cost. If the fuel were thrown in for free, absolutely for nothing, it would not reduce the cost of a kilowatt-hour that comes out of the outlet up here by more than about 8 percent.

Mr. VOORHIS. You mean the transmission costs are the rest of it?

Senator HICKENLOOPER. The wires and transmission and service and all of those things that go into it cost 91 or 92 percent of the delivered cost of that electricity.

Mr. VOORHIS. Senator, no; I am not aware of that. I am not in a position to argue with you, and I don't propose to, but I am very surprised at those figures. I will say that much.

Senator HICKENLOOPER. Of course, I am no expert on the subject myself, and I am only quoting what seems to be a pretty well accepted breakdown of cost elements.

The figures that have been quite substantially accepted, at least in the last few years over the United States is that on the average the cost of a kilowatt-hour of electricity delivered say to that lamp bulb up there, the big users and the wholesale users and the little users, is roughly about 3.7 cents a kilowatt. That is as it comes out of the outlet. The cost of the fuel that goes in to produce that kilowatt-hour, on the average, over the United States, whether you use corncobs, or coal, or oil, or water, or what you use, the rough overall average cost of the fuel is about 3.4 mills. So that, if you had your fuel for nothing, you see, the cost could not be reduced 10 percent under what it is now.

Mr. VOORHIS. But, Senator, doesn't this assume, though, that the location of our sources of power is the same pattern as it is now, and does not this necessarily average in very long transmission lines, in certain cases, and very short ones in others? What I am trying to say is that it seems to me that one of the most important things about the development of power from atomic energy is that you could locate the atomic powerplants in strategic places. They would not have to be just where the coal is, or just where the waterfalls are, or something else. Consequently, the length of transmission lines could be substantially reduced, which seems to me to be one of the most important factors.

Maybe if this development were really carried through, it would change that relationship, whatever it may now be.

Senator HICKENLOOPER. I understand that, but I am giving the overall cost, which takes in the cost in high-fuel-cost areas, and the cost of fuel in low-cost-fuel areas, where fuel is readily accessible and at a very small delivery cost. Those are average figures.

The only reason I raise that is that in my own personal view there has been too much loose talk around over the country by people, and I am not referring to you at all, sir, but I am talking about a lot of writers who write fancy articles about some day we are going to have this stuff made out of uranium, and there is going to be practically no cost to the people. There has been too much of it put out that has misled the people into a false hope that by perfecting uranium as a fuel to get it down some place where it is competitive with coal or less, we may even get it less than coal, and that it is going to greatly reduce the cost of power.

In my view, that just is not the case. If you threw it in, and just gave the fuel for nothing, you could not under these statistics and figures, if they are correct, reduce the cost of the kilowatt-hour to the outlet where it is usable more than about 8 percent.

I mean I am not taking issue with you on that, except I am taking this opportunity to express some views on that. Manifestly, if, and I hope and believe it will be soon, uranium as a fuel is developed to a point where it will get what we might say fairly cheap, then, of course, it will be a boon to areas that are far removed from sources of fuel. That is, places in this country and other places in the world. It would be a boon to those places, but I am talking about the industrial complex of this country, and the general household use in this country of power.

Mr. VOORHIS. Well, it would cut the transmission cost in those places.

Senator HICKENLOOPER. If they are now receiving electricity from great distances, of course, manifestly, that would be true. But that

would be local isolated benefits, which no doubt will occur. That is all, Mr. Chairman.

Representative HOLIFIELD. Well, Mr. Chairman, I was looking for testimony before our committee last year. The testimony, as I recalled it, showed the retail prices of electricity in the United States. Subject to correction, for the record, I believe that the chart that was given us showed that the average price in the New England area ran from 8 to 11 mills per kilowatt. In many other areas of the country, it was 6 and 7 mills per kilowatt.

Chairman ANDERSON. Was that not the generating cost?

Senator HICKENLOOPER. That is at the bus bar.

Representative HOLIFIELD. I am not sure whether it was generating cost or not, but I know of no area where even if it was the generating cost, the record showed that the cost of either producing this power was less than around the cost in the Tennessee Valley. There was a similar cost up in the Bonneville-Shasta area, but in most places, I believe, the prices were quite a bit higher than the Senator quoted.

Senator HICKENLOOPER. We are not talking about the same thing. I am talking about fuel, and not the motors, and not the generating facilities. I am talking about the fuel that creates the heat that goes in there. I am not talking about bus-bar costs now, necessarily.

Chairman ANDERSON. Three and a half mills is the generating cost. He is talking about the cost delivered to a house or factory. That you can average across the country and he came out about 3½ cents.

Representative HOLIFIELD. The staff just handed me this chart now, and this chart shows, in chart No. 3, found on page 451 of the hearings of last November, under the heading, "Average Price of Power Purchased by REA Borrowers, in the Fiscal Year 1952."

It goes from 9 to 15½ mills in the New England States, and around 4.9 in Tennessee Valley, and around 6.2 to 9.7 on the Pacific coast, with the exception of the State of Washington and part of Oregon, where it is 3.5.

Now, that is up in the Bonneville-Shasta area, of course.

Senator HICKENLOOPER. I do not want to disturb your line of reasoning, but we are not talking about the same thing. I am talking about the fuel that goes in to produce that at the bus bar. Those prices you are quoting includes the machinery that produces the electricity, and the capital investment and the cost and all of that. I was only talking about the cost of the stuff that makes the heat, whether it is oil, gas, coal, or water. I was talking about the cost of producing the heat that makes the power. That is all.

On top of that, you have the cost of the motors, and you have the cost of the building, and you have the cost of everything else that comes into the cost at the bus bar. I do not dispute your figures on the cost of the bus bar. I am only talking about the fuel.

Representative HOLIFIELD. That is possibly the difference in our understanding on this problem, but I would say this: That if atomic energy develops as some of our scientists have estimated that it will develop, it will eliminate many of the present capital plant investments which now add to that cost to the consumer. There is a well-defined line of thought, among the scientists, that the expensive reactors which are now necessary will not be necessary if certain experiments come through as they hope they will.

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There is also the elimination of your transmission, the expensive transmission lines, and long distances, and the losses of electricity over the transmission lines.

I am a little bit more optimistic of the final end result than Senator Hickenlooper is. I feel if these experiments go through as some of our very best physicists believe, that there will be an opportunity for much cheaper electricity to be delivered to the people through the atomic field than is now present through the fossil fuel, or even falling water. You will never get anything cheaper than falling water, as far as energy is concerned, but when you add to it the costs of the dams, and the generators, and the transmission lines, some of which you would probably not have to have if these developments come through, then you might have a much different result.

Mr. VOORHIS. Yes. Thank you very much.

Representative HOLIFIELD. Of course, there is no guaranty that those scientific theories are going to be made a reality, but there is some very fine evidence that they are making progress, and the interest of these great ultimate companies in this field is evidence that they, too, believe that this is going to greatly cheapen electric production.

Mr. VOORHIS. Of course, as far as my testimony is concerned, I think I have been careful not to pose as a scientific expert. All I have appealed for is a policy that would proceed as far as we can in producing an abundance of power at the least practicable cost, whatever that might be.

The CHAIRMAN. If there are no further questions, thank you very much, Mr. Voorhis.

Mr. VOORHIS. May I just say one word, Mr. Chairman. It is that I hope that my legislative suggestions aren't going to be taken by anybody as a criticism of the United States Congress, but in my capacity as a witness, I have an equal duty to present such suggestions as occur to me as being constructive.

I certainly understand the struggle that Members of Congress go through.

Chairman ANDERSON. I remember some times when we were on the right side of many questions and as we saw it, the right did not prevail.

Representative COLE. I was intrigued by the counsel which our friend, Jerry, has given us, when he quoted the advice of the Senator to the effect that "When in doubt, do right."

But I find little comfort in that advice. I would like to have you tell me what to do when you doubt what is right.

Mr. VOORHIS. Well, may I say to the gentleman——

Representative COLE. If you do not know what is right then what do you do?

Mr. Voorhis, it is easy to know what to do when you know the difference between right and wrong, but what do you do when you do not know what is right?

Mr. VOORHIS. That was mentioned to end a rather heavy piece of testimony on a somewhat lighter note, and that is all it was meant to do.

Representative COLE. Thank you. I thought it was given to us in seriousness.

Mr. VOORHIS. It was meant to be an expression of some sympathy with the members of this committee, as they wrestle with problems of such tremendous magnitude. I wish I knew always what was right, I will say, and I am sure we all do.

Senator HICKENLOOPER. If I may just suggest to Mr. Voorhis with respect to his statement about not criticizing Congress, that criticism of the Congress would not be unique, and I think it is an American privilege. I am sure no one will take offense if you criticize certain actions of the Congress.

Mr. VOORHIS. Thank you, sir.

Chairman ANDERSON. The committee will have an executive committee meeting downstairs at this time, and will meet tomorrow afternoon at 1:30 to hear Admiral Strauss. It may be that we will have one paper first and then hear Admiral Strauss, but we will start at 1:30 in any event.

(Whereupon, the committee adjourned at 3:45 p. m., Wednesday, February 9, 1955, to reconvene at 1:30 February 10, 1955.)

DEVELOPMENT, GROWTH, AND STATE OF THE ATOMIC ENERGY INDUSTRY

THURSDAY, FEBRUARY 10, 1955

CONGRESS OF THE UNITED STATES,
JOINT COMMITTEE ON ATOMIC ENERGY,
Washington, D. C.

The Joint Committee met at 1:35 p. m., pursuant to adjournment, in room P–63, the Capitol, Senator Clinton P. Anderson (chairman of the joint committee) presiding.

Present: Senators Anderson (chairman), Pastore, Gore, Hickenlooper, and Millikin; and Representatives Durham, Holifield, Cole, Hinshaw, Dempsey, Van Zandt, and Patterson.

Present also: Corbin C. Allardice, executive director, George Norris, Jr., counsel to the joint committee, and Walter A. Hamilton of the professional staff of the joint committee.

Chairman ANDERSON. The committee will be in order.

The committee suggested to Admiral Strauss at his convenience he come and make such statements as he desired to make, and he asked the privilege of being here this afternoon. We are happy to afford him that privilege.

STATEMENT OF LEWIS L. STRAUSS, CHAIRMAN, UNITED STATES ATOMIC ENERGY COMMISSION, ACCOMPANIED BY KENNETH D. NICHOLS, GENERAL MANAGER OF THE COMMISSION

Mr. STRAUSS. Thank you, Mr. Chairman, I would like to apologize for my voice this afternoon, but I will speak into the microphone and make it as distinct as possible.

Mr. Chairman and gentlemen, I am sorry that I am compelled to offer this statement in the record of this hearing. Faced with the alternatives of doing so or of allowing the various charges and inferences in the statement of one of my colleagues to remain unrefuted, I believe that in the light of obligations to keep you fully and currently informed which I bear as a member and Chairman of the Commission, I have no choice but to place the facts before you.

The current hearings of your committee which began on January 31 were called for the purpose of inquiring into the "development, growth, and state of peacetime uses of atomic energy" pursuant to section 202 of the Atomic Energy Act of 1954. The controversial matter of the MVGC contract was not alluded to in the agenda which you were so good as to supply us. Therefore, we prepared detailed reports on all phases of the program for peacetime application.

The hearings had barely started, however, before my colleague, without apprising the other members of the Commission of his intention, introduced the question of the MVGC contract with his prepared statement which he read to you on Monday, January 31. Therefore, it should first be made clear that perpetuation of this time-consuming controversy was contrary to the expectation and desires of the other Commission members.

Furthermore, my colleague testified, and in my prepared statement which is before you, the page references are noted to each of these instances, page 597, that he anticipates that every meeting of the Commission "from this point forward" will find the Dixon-Yates matter under discussion.

I am deeply concerned by this assertion. Certainly, I do not intend to raise the issue at every meeting from now on and thereby add to the harassment of the Commission, to employ a word that has been used in testimony before you.

For some time, repeated allegations have been made to the effect that the contract with the Mississippi Valley Generating Co. has diverted the Atomic Energy Commission and its staff from their primary responsibilities. These responsibilities are the development and production of weapons and progress on peacetime applications of atomic energy.

My colleague gave further circulation to these charges in his testimony before your committee on Tuesday of this week, as well as in his earlier testimony on the opening day of the current hearings, January 31.

The Mississippi Valley Generating Co. contract, to be sure, has required much time and effort on the part of the Commission and various members of the staff. Furthermore, the contract will continue to require some of the time of these individuals just as our previous contracts, the Ohio Valley Electric Co. and Electric Energy, Inc. contracts, continue to occupy time of the Commission and its staff, without, however, in any way interfering with the discharge of the Commission's primary responsibilities.

The fact that our weapons production is at an alltime high, as my colleague concedes, and that we are making notable progress in the peacetime applications of atomic energy speaks for itself. Such a record cannot justly be waved aside with the assertion that it is due to decisions taken in 1953 or earlier. The more than 600 letters and reports which I have addressed to your committee in the past 18 months, which number is more than double the number submitted previously in a comparable period of time, embody the evidence that atomic strength and atomic progress in the world as it exists today are far too competitive and too urgent to be dependent upon decisions so remote. A determined day-by-day effort is necessary.

I come now to the matter of the meeting of the Commission held on Tuesday, February 1, which figured in the testimony of my colleague on February 8.

On the afternoon of February 1, I was a witness before your committee and in reply to a question as to whether I "had heard of it—i. e., the Dixon-Yates contract—in the interim from November to the present date," I testified as follows (p. 121):

I think that since the Commission approved the contract and reported it to the Joint Committee with the request for a waiver that there have been reports

by the General Manager to the Commission of progress in negotiations but I can recall no discussions in the Commission. I won't go so far as to say that they have not occurred. I cannot recall any discussions.

I also stated (pp. 124, 125):

I said, Mr. Chairman, that I could recall no such discussion but I am not in a position to say that the minutes will not reveal it. I will be glad to have them searched and report to you at the next session of the committee.

I also stated (p. 125):

I am sure that the General Manager at numerous meetings of the Commission has reported on the progress but I can recall no subject of discussion because I can recall no issue that has intervened.

It should be clear that my repeated use of the words "discussion" and "discussions" showed that I thought I was being responsive to the Chairman's questions, as relative to substantive consideration of the contract, not to its mere mention, for it was mentioned daily in the press and elsewhere.

My colleague, in testifying on February 8, however, said that the Mississippi Valley Generating Co. contract was discussed at the Commission meeting on February 1. By omitting a pertinent fact, he allowed the impression to be created that I had attended or even participated in a discussion of the contract. I am confident that this was no more than an inadvertence or a lapse of memory on his part. These are the facts:

There was a meeting of the Commission on February 1 which began at 10:30 a. m. and lasted until 12:20 p. m. I was unable to be present during the first hour and 10 minutes of the meeting. I entered the meeting at 11:40 a. m. While the minutes have not yet been presented for approval by the Commission, a reporter's verbatim transcript is available. It notes the precise point of my entry.

The transcript shows that before I entered the meeting there had been a prolonged discussion of the MVGC contract and its legal aspects, such as the effect of the Joint Committee resolution of January 28. These subjects had been discussed and concluded——

Chairman ANDERSON. And "included"?

Mr. STRAUSS. Concluded before I entered the meeting. Other subjects unrelated to the Dixon-Yates contract were under discussion by the time I arrived.

Near the close of the meeting I was handed a news ticker statement which reported Senator Gore's telegram addressed to me on February 1. The transcript shows that I read it to the Commissioners. Commissioner Murray thereupon said that "in that connection" he wished to propose a motion. Mr. Libby and I stated that we were not prepared to vote at that time. The motion, or more properly a substitute motion by my colleague, was laid over to a subsequent meeting. It did not die as was testified here on February 8. The meeting then passed along to other matters, following which it adjourned, and I had a luncheon engagement with Congressman Durham and came directly from luncheon to the hearing before this committee.

I certainly did not then, and do not now, consider my reading of Senator Gore's somewhat precedent-setting telegram, as it appeared on the news ticker, and the postponement of Mr. Murray's motion as constituting a discussion of the contract.

I come now to the charges which have been made, contending that preoccupation with the MVGC contract on the part of the Commission and its staff has jeopardized, interfered with, or adversely affected the primary responsibilities of the AEC.

Since November 11, when the contract was approved by unanimous vote of the Commission, very little discussion of the contract or related matters has occupied the time of Commission meetings.

The Commission's staff has reported that between November 11, 1954, and today only a little over 2 hours have been devoted to such discussion, during six Commission meetings. Of this 2-hour total, approximately one-third is accounted for by the meeting held on November 11, 1954, the day the contract was formally approved.

Since November 11 most of the matters relating to the contract which came before meetings of the Commission have consisted of progress reports made by the General Manager and interpretations by the General Counsel.

Documented evidence of time spent since November 11 is now in possession of your committee showing that the Dixon-Yates contract has not interfered with the primary responsibilities of the Commission and its staff.

It is known to all the members of the Commission and to all the members of the Joint Committee that the division of the Atomic Energy Commission most vitally involved in these primary responsibilities, that is, weapons for defense and advancement of the peaceful atom, are (1) the Production Division, (2) the Division of Military Application, (3) the Division of Reactor Development, and (4) the Division of Research.

Therefore, it would seem to be appropriate for your committee to be advised as to what, if any, interference has been suffered by these divisions.

Now, my colleague requested and received just such information prior to his testimony. However, in his presentation on Tuesday of this week, as I read the transcript, he failed for some reason to mention that the reports covering these latter three divisions—Military Application, Reactor Development, and Research—all indicated that they had spent no time whatever on the MVGC contract or any of its ramifications. It could not possibly be contended, therefore, that their important responsibilities had been interfered with.

Indeed, this striking piece of information appeared from the transcript of the February 8 testimony to have been elicited in part, but only through questions by Mr. Cole (pp. 610, 611, 612).

Chairman ANDERSON. Can you tell us why you think that is striking—he did give us the divisions which had spent time—and why would you think it is striking that he did not give us a list of the divisions that had not spent time?

Mr. STRAUSS. He was given a substantiation of the statement to the effect that this had impaired the work of the Commission in its primary responsibilities of weapon production and power-reactor development.

Mr. Chairman, I am very nearly finished.

I hasten to add that I do not believe that my colleague omitted this information at that time with any improper motive, but its effect was to give a false impression.

Chairman ANDERSON. Who is responsible for this display that we have had? What is it, please?

Mr. STRAUSS. I am responsible for it. This is an indication—or these cases contain all of the reading papers which the members of the Commission have received from the staff from the period January 1, 1954, to date on every subject other than the Dixon-Yates contract.

I have here also the papers which have had to be read by the Commissioners in connection with the Dixon-Yates contract. Since my colleague referred to the fact that statistics are not entirely revealing, I thought the bulk indicated by the amount of work required by the Commissioners might be impressive to the committee.

The reports which my colleague cites in support of his tabulation of the time devoted to Dixon-Yates since November 11 make it quite clear that no phase of the Commission's important tasks was made to suffer because of work on the MVGC contract.

I would now thank you for the opportunity you have accorded me to put the record straight, and in closing may I join you, Mr. Chairman, in the wish you expressed when you stated (p. 633):

> From here on out we are going to rule out everything relating to Dixon-Yates until we get through with the purpose of this hearing which has to do with the progress and state of development of the industrial uses of atomic energy.

That is the end of my statement, Mr. Chairman, and I thank you for the opportunity of submitting it.

Chairman ANDERSON. Admiral Strauss, you recognize that I referred to this transcript on page 121, and then that I came back to it on pages 124 and 125. Maybe I should explain the reason I did it that way. I was a little bit surprised at the statement that there had been no discussion in the Commission on it, since I had been informed that there had been discussion that very morning, and that there had been a motion by one of the Commissioners, and I thought that—come right on through, and we will get some additional trucks.

Mr. STRAUSS. I think we have brought in enough. This is some indication of what we read.

Chairman ANDERSON. I think Senator Pastore will put this his way.

Senator PASTORE. I do not think that we need this kind of physical proof, Mr. Strauss. I think we can take your word for anything you have to say. I think this is now assuming rather ridiculous proportions.

Mr. STRAUSS. I couldn't agree with you more, sir.

Representative COLE. Mr. Chairman, I would like to express a word of approval of the graphic way the Chairman of the Commission has demonstrated the amount of paperwork that the Commission has had to go through, and the extent to which this Dixon-Yates thing has added to the paperwork of the Commission.

Chairman ANDERSON. We will proceed in that spirit.

Now, Mr. Chairman, when you said you could recall no discussion in the Commission, did you after the Commission meeting adjourned discuss this matter with the General Manager?

Mr. STRAUSS. No, sir; after the Commission meeting adjourned, the Commission meeting took place in my room——

Chairman ANDERSON. Who was there?

Mr. STRAUSS. I am sorry, outside of the Commissioners and the General Manager and General Counsel, I am unable to say whether other members of the staff were present.

Chairman ANDERSON. Was Commissioner Libby there?

Mr. STRAUSS. Yes; Commissioner Libby was present.

Chairman ANDERSON. Is he present? I asked him to be here.

Mr. STRAUSS. I would like to continue to answer your question, Mr. Chairman. The meeting took place in my office, where I have a table on which I serve lunch. Mr. Durham was coming to lunch with me, and I informed the Commissioners that I would have to adjourn the meeting in view of the fact that I had a luncheon engagement.

I lunched with Mr. Durham and I came directly to this meeting. There was obviously no time for the reporter to transcribe the 2 hours, or better than 2 hours session. I had no participation in the discussion of the Dixon-Yates contract which had occurred prior to my entry, nor was the proposal of Mr. Murray's motion a result of that. It was the result of the fact that I had received and read a news statement embodying Senator Gore's telegram to me of that date.

Chairman ANDERSON. On page 4 of your statement, you say:

> While the minutes have not yet been presented for approval by the Commission, a reporter's transcript is available. The transcript shows that before I entered the meeting, there had been a prolonged discussion of the Missouri Valley generating contract in its legal aspects.

Now, Commissioner Libby sat right here while I asked if there had been a discussion of it, and remained silent. Do you think that was proper?

Mr. STRAUSS. I cannot speak for Dr. Libby. I was the witness and I presumed that he was expecting me to testify according to my best knowledge and belief. General Nichols was also present.

Chairman ANDERSON. I will ask him why he did not volunteer.

Mr. STRAUSS. I will ask him whether he thought my answer was responsive.

Chairman ANDERSON. You were present in the room when Dr. Libby and Mr. Murray engaged in a long discussion of this matter?

Mr. NICHOLS. I was. We were discussing a legal matter.

Chairman ANDERSON. Were you present when I asked the Chairman if there had been any discussion of it and he said there had not been? Why did you not feel prompted to correct him on that subject? You do frequently in the testimony.

Mr. NICHOLS. He had stated here generally that there had been reports by the General Manager, and legal discussions, as covered in part.

Chairman ANDERSON. Oh, no; he said, "There may have been, but I know nothing of them." You knew something of them; did you not?

Mr. NICHOLS. Yes; I thought he had answered.

Chairman ANDERSON. Under those circumstances, you thought to keep quiet?

Mr. NICHOLS. I find it very difficult in these hearings to always get the exact tone that you want in a statement. I did not connect the importance of this with what it later turned out to be.

Chairman ANDERSON. But you did know there had been a meeting that morning when we were discussing it that afternoon and the Chairman could not recall it? Is that right?

Mr. NICHOLS. I don't quite understand.

Chairman ANDERSON. When you sat here, you knew there had been a discussion that very morning?

Mr. NICHOLS. Of course, I knew there had been discussion that morning.

Chairman ANDERSON. And you felt no prompting whatever to suggest that you might reveal that fact?

Mr. NICHOLS. I missed it at the time and later we went on to something else.

Chairman ANDERSON. What do you regard as "discussion"?

Mr. STRAUSS. I do not have a copy of Webster before me.

Chairman ANDERSON. I have one here if you want to consult.

Mr. STRAUSS. I will accept the definition.

Senator MILLIKIN. This is positively higgling.

Chairman ANDERSON. It may be, but when he could not recall anything, I went over to Senator Gore and I said, "Did you know there was a meeting?"

Senator MILLIKIN. The gentleman has explained he was not there.

Chairman ANDERSON. He was present when the motion was made.

Mr. STRAUSS. That was not a discussion of the contract, in my opinion.

Chairman ANDERSON. When you stated you did not believe it was properly taken up, that was no discussion of the matter?

Mr. STRAUSS. Of the contract; no.

Chairman ANDERSON. "There was no discussion in the Commission." Those are your words.

Mr. STRAUSS. I assumed that your question had to do with substantive discussion of the contract, all having to do with the great consumption of the time of the Commission. All of this was based upon the assertion that the Commission was being diverted from its proper purposes by prolonged discussions of the substantive aspect of the contract. Nothing of that sort was involved here.

As a matter of fact, I saw this transcript yesterday for the first time. I believe that there are 3 or 4 pages, double or triple spaced, at the end of the transcript having to do with this instant, the greater part of which is taken up with a reproduction of the news-ticker statement of Senator Gore's message, Mr. Murray's offer of a motion, and my rejoinder, and Dr. Libby's rejoinder, and Mr. Murray's rephrasing, I think, of his motion, and my statement that since neither Dr. Libby nor I wished to vote that the matter would be kept alive until the next meeting.

I might say, sir, that I was concerned in reading the minutes to find that information about it had reached you between 12:20 when the meeting adjourned and 2 o'clock when we met here, because naturally that gives me some pause as to the security of our deliberations. That is something that I hope on a subsequent occasion you will give me an opportunity to discuss with you because I am worried about it.

Chairman ANDERSON. I commended the news staff that tipped me off to it. I would never have known of it otherwise.

Mr. STRAUSS. I am worried about it.

Chairman ANDERSON. I was happy to know about it. I thought it was a strange thing that you would not know when the last time was

that the Dixon-Yates contract was discussed by the Commission. Your answer was:

I am sure the General Manager at numerous meetings of the Commission has reported on the progress, but I can recall no subject of discussion because I can recall no issue that has intervened.

Was the making of a motion an issue that did intervene?

Mr. STRAUSS. No, my answer to your question was the first answer, Mr. Chairman. I haven't a copy of the transcript before me, but when you asked whether I had heard of it in the interim from November to the present date, I think then you will find that my answer on page 121 was:

I think that since the Commission approved the contract, and reported it to the Joint Committee with the request for a waiver, that there had been reports by the General Manager to the Commission of progress in negotiations, but I can recall no discussion in the Commission. I won't go so far as to say that they have not occurred. I cannot recall any discussions.

I couldn't recall the discussion of that morning of which I didn't know, as a matter of fact, until I read the transcript on yesterday.

Chairman ANDERSON. But both Dr. Libby and General Nichols could recall it, could they not?

Mr. STRAUSS. Yes, and Mr. Murray who was here.

Chairman ANDERSON. I went over and said to Senator Gore——

Mr. STRAUSS. Mr. Murray did not prompt you either.

Chairman ANDERSON. I asked Senator Gore, "I wonder if we should check with the others about it."

Senator HICKENLOOPER. I do not see how you can hold Chairman Strauss responsible for someone's failure to question someone else. The question is, Has Mr. Strauss been responsible? If he was not at the meeting, obviously he did not know what happened at the meeting.

Whether someone should have prompted him, and whether someone sitting here should have added something himself, if they were not asked, under what theory do we expect they will testify?

Mr. STRAUSS. I have asked myself, what could be in your mind as to any conceivable motive for my failure to testify in answer to that question, particularly since if I knew it and my colleagues knew it, I would be testifying falsely.

The matter is so shocking to me, frankly, that I couldn't testify yesterday.

Representative COLE. I think the record should show, as has been indicated, that Mr. Murray, one of the Commissioners, was present at that Commission meeting, and was present at the occasion of the hearing to which reference has been made when Mr. Strauss said that the subject had not been discussed at a Commission meeting recently.

Now, if there is any dereliction of duty to be attached to General Nichols and Commissioner Libby for their failure to prompt the Chairman of the Commission, and remind him or advise him of the fact that this subject was discussed at a Commission meeting that morning, at which he was not present at that time, then that same dereliction of duty should attach to Mr. Murray.

I would like to inquire of the chairman, is it the purpose to try to indicate that it was a deliberate, studied attempt on the part of the Chairman of the Atomic Energy Commission with respect to the Commission's deliberations? If that is not the purpose, then what is the purpose of this line of interrogation?

Senator PASTORE. If you ask me, none. I think it is most unfortunate that this incident ever happened. I wonder what benefits flow to the American people, and I wonder what benefits flow to the world peace, and I think we are wasting a lot of time. Whatever was done here, I think, was inadvertent. We ought to shake hands and get on with our job.

Representative COLE. Amen.

Chairman ANDERSON. Very well, are there any questions?

Senator GORE. Mr. Chairman.

Chairman ANDERSON. Senator Gore.

Senator GORE. I notice at another place, Mr. Strauss, in your testimony that you——

Mr. STRAUSS. Pardon me. I am not hearing you terribly well, Senator.

Senator GORE. I beg your pardon. At the top of page 4 of your statement, to quote your own testimony, it is easier to quote it from your statement today because it is easier to find, you say: "I can recall no issue that has intervened."

Could you not have recalled the motion which Commissioner Murray made?

Mr. STRAUSS. Certainly, I could have recalled that, but I didn't regard that as an issue which had intervened in connection with the substantive part of the contract. Mr. Murray's position had been made clear the preceding day, or maybe before that. Mr. Murray's position had been made clear on January 31 in the course of his testimony and his prepared statement. That was known not only to me but to each member of your committee, sir.

Senator GORE. You did not regard the presentation or the offer of a motion by 1 of the 3 Commissioners to proceed to cancel the Dixon-Yates contract as an issue?

Mr. STRAUSS. Not in the sense in which I issued it; no, sir.

Senator GORE. Well now, I do not want to resort to the dictionary, but I would like you to explain just in what sense you used the word "issue."

Mr. STRAUSS. Something substantive to the contract itself, a clause or a finding of a public regulatory body, all of which were things that we were concerned with at one time or another in connection with the contract.

Senator GORE. You would not regard cancellation as equal in importance to a clause?

Mr. STRAUSS. Equal in importance? Certainly, Senator, but not an issue in the sense that I used the word here.

Senator GORE. What was your purpose in using it in that particular sense?

Mr. STRAUSS. You will recall, Senator, that this was a colloquy in response to a question, and words are not weighed to the degree of fineness that I would attempt to have in mind a definition of the word "issue." I am sure that I meant exactly what I have just said.

Senator GORE. Well, I will take a moment to find the exact question which was submitted to you.

Chairman ANDERSON. Then I think the Chairman will be ready to testify whether he has heard of it in the interim from November to the present date?

Mr. STRAUSS. I beg your pardon.

Chairman ANDERSON. You have been busy with it. At least you have talked to me.

Mr. STRAUSS. I have been busy. I think that since the Commission approved the contract, and reported it to the Joint Committee with the request for a waiver that there have been reports by the general manager to the Commission of progress in negotiations, but I can recall no discussions in the Commission. I won't go so far as to say that they have not occurred. I cannot recall any discussions.

Chairman ANDERSON. Did you yourself issue a fairly long statement on it?

Mr. STRAUSS. Only one press conference on the subject, after November 12.

Chairman ANDERSON. Did you not release a rather long statement on the Dixon-Yates contract?

Mr. STRAUSS. At the press conference.

Chairman ANDERSON. Did that take any time?

Mr. STRAUSS. It certainly took the ordinary time to prepare.

I am reading this testimony, Mr. Strauss, in order to recall to your mind that the question before the committee was whether or not the Dixon-Yates contract had distracted the attention and the energy of the Atomic Energy Commission.

Mr. STRAUSS. And took time.

Senator GORE. I appreciate your contribution.

Chairman ANDERSON. I think Mr. Cole's statement or request is perfectly proper, and I hope that Commissioner Murray will accede to it, and I do feel it is going to open up a subject for rather long discussion, but we will have time for that.

Then Mr. Holifield asked a question. I believe I will not read this whole page.

Mr. STRAUSS. It might be helpful, Senator, if you would, to me.

Senator GORE. If you think it will be helpful, I will.

Mr. STRAUSS. Because I haven't read it in extenso, and if it has any bearing on my subsequent replies, I would appreciate it if I could hear it. Or if you wish, I will just read it here.

Senator GORE. No; I will be glad to accommodate you.

Mr. STRAUSS. Thank you.

Senator GORE (reading):

Representative HOLIFIELD. Could I ask one question on that? I would like to also know if the legal staff of the Commission have been involved in discussions, and have been devoting time to this contract, not only since the last November waiver was made, but also over the last year. Have they been involved to any considerable extent in pursuing certain legal questions that have been raised as a result of this?

Mr. MITCHELL. We have, of course, Mr. Holifield. I would not be prepared to estimate how much time it has taken, or what proportion of the time .

Chairman ANDERSON. I would not ask you to go to the trouble of documenting it, but we would be safe in saying that you have spent considerable time studying this particular contract, and its related matters?

Mr. MITCHELL. Over the period of the last year, certainly.

Representative PRICE. Mr. Chairman, I think the records will show that Commissioner Murray has been consistent in his position on the Dixon-Yates contract. As I recall the evidence we have in our records, Commissioner Murray joined with

two other members of the Commission as far back as last June indicating that he thought that this contract was forcing the Atomic Energy Commission into a responsibility far remote from its ordinary functions. I have seen nothing in any time since then that indicated that Mr. Murray was not consistent in his position on this contract.

Mr. STRAUSS. Mr. Chairman, I think Mr. Price is in error in thinking that Mr. Murray rejoined with Commissioner Smyth and Commissioner Zuckert. I believe the 2 of them signed a letter but I think that they were the only 2 signatories.

Senator GORE. I doubt if this particular section has a bearing upon the meaning here.

Mr. STRAUSS. Except I would be interested. The word "time" has occurred seven times since you have been reading, and this is what I had in my mind. The whole emphasis on this questioning was as to the amount of time taken by the Commission on this business, and it is borne out by what you have just read. I didn't know that I would find it, but there it is. I think that you will find it some more times, Senator.

Senator GORE. I did not get that remark.

Mr. STRAUSS. I think that you may find as we go along that there is a continual emphasis on the consumption of time by the Commission.

Senator GORE. Yes, and that was particularly one of the points I wanted to call to your attention; that in the course of the inquiry that day the committee members were undertaking to get at the truth of the contention between you on the one hand that it had not interfered with the atomic-energy program, and the contention on the other hand by your fellow Commissioner that it had seriously interfered with the program. We were undertaking to find what time you had spent on it.

You were asked if there had been any discussions by the Commission, and you said you could recall none.

Mr. STRAUSS. No.

Senator GORE. Well, I am sorry if I misquoted you.

Mr. STRAUSS. I said the General Manager and the General Counsel had made reports of progress and negotiations; and as it so happens I have had the minutes of the Commission researched since November 11 and I have with me here today, and can read into the record, the precise minutes and the precise items and the precise time, based on an agreed-upon reading time per page, that has been spent on this subject, and I think it might be illuminating.

Representative COLE. What does it show?

Mr. STRAUSS. Pardon me while I get that.

Senator GORE. What is this you are about to read?

Mr. STRAUSS. I am about to read a statement prepared by the secretariat and received this morning. I might add I have not read it. I have heard about it, but I have not yet read it.

Senator GORE. Would you mind indicating if this is a verbatim thing?

Mr. STRAUSS. This is a report from the secretariat of the Commission showing the estimated time taken up by the Mississippi Valley Generating Co. contract discussion at Commission meetings November 11, 1954, to the present time.

Representative HOLIFIELD. Mr. Chairman, will the gentleman yield?

Senator GORE. If you will pardon me just one moment. Before you read that, would you mind submitting to the committee the steno-

graphic report of the session in question. You referred to it in your statement earlier.

Mr. STRAUSS. I will discuss with my colleagues that question, and with counsel. We have never been called upon before to submit minutes or transcripts of meetings to the committee. If the committee insists on receiving them or asking for them, we will have to take that under very serious consideration.

But I question whether you will wish to do so since, if you do, you will obviously inhibit the free exchange of opinions and views among Commissioners and staff in the future. I am, however, prepared to have that discussed by the Commission. I will not respond to it myself, Senator. It would be improper for me to do so and I am sure you would concede that.

Chairman ANDERSON. Did you ask the joint committee at one time for its minutes?

Mr. STRAUSS. Did I, personally?

Chairman ANDERSON. The Commission; that is, you, as Chairman.

Mr. STRAUSS. Again I must say, Mr. Chairman, that I can recall of no such case while I have been Chairman.

Representative COLE. Even if the gentleman may have, as Chairman, asked for minutes of the joint committee, that permission was not granted without the concurrence of the joint committee after the committee had considered the subject.

Mr. STRAUSS. Could it have been an instance where I was asking for the minutes of a meeting at which I had testified, in order to read my own testimony? If so, I think that is on a quite different footing.

But, in any event, I would like the record to evidence that I do not recall so that I may avoid subsequent embarrassment if it develops that my recollection is at fault.

Representative HOLIFIELD. Mr. Chairman——

Senator GORE. I yield.

Representative HOLIFIELD. I think this discussion, to a certain extent, in the introduction of these time elements since November 11 is completely beside the point. There has never been any great contention that after the contract was signed and after the hearings were over that there was a great deal of time consumed in the interim period between November 11 and now.

Mr. STRAUSS. I beg your pardon.

Representative HOLIFIELD. I understand that you are making a proper response to the question that was offered, but we are missing the point in that the whole burden of the original questions that were directed was to the point as to whether the discussions and the work involved in studying the Dixon-Yates contract and all of that sort of thing, and the different conferences, had detracted over the period since December of 1953.

Mr. Murray responded to a direct question "since November 11," and produced some figures here of something like 2,087 hours. But that has no real significance in view of the fact that the work was done before November 11, and not since November 11.

I just think the record ought to show that, that this discussion of the time spent since November 11 is just one very small part of the picture.

Senator GORE. I have now found the exact colloquy.

Mr. STRAUSS. Do you wish to have this put into the record, Senator?

There is no use that I read it unless you wish me to, and I will be happy to. This is the notation of the meetings in question. As I say, there were six of them, running down to February 5, at which the Dixon-Yates matter was discussed by the general manager or counsel, and an indication of the amount of time required.

Senator GORE. I have no objection to that going in the record and I think it should go in the record.

Mr. STRAUSS. I don't wish to put it in unless you wish it.

Senator GORE. I do wish it.

(The information referred to will appear in the appendix to pt. 3.)

Now you say there were six meetings?

Mr. STRAUSS. Six at which this occurred, and there were many more meetings.

Senator GORE. Six meetings at which there was discussion of Dixon-Yates?

Mr. STRAUSS. That is right, sir.

Chairman ANDERSON. Is this being done in compliance with what is on page 125 of that transcript where you said: "I would be glad to have them searched and report to you at the next session of the committee"?

Mr. STRAUSS. No; I would be glad to have it so considered, but that offer I did not know was accepted, or that you wished me to do it.

Chairman ANDERSON. I am sorry. Did you make an offer that you would search them and report at the next meeting?

Mr. STRAUSS. I said I would be glad to have them searched and report.

Chairman ANDERSON. Did you so report?

Mr. STRAUSS. No; I did not, because I did not know that the committee required it.

Senator PASTORE. Would the chairman yield at this time?

Has that record now been audited and inserted in the record, the minutes of the meeting?

Chairman ANDERSON. Not the minutes of the meeting; we have never asked for the minutes of the meeting until Senator Gore's request. And I think properly, sir, you should submit the request to the committee.

Senator GORE. I asked him if he had them, and had referred to them.

Mr. STRAUSS. I think the record should show that the minutes of that meeting have never as yet been approved by the Commission. The Commission ordinarily acts upon its minutes with considerable celerity.

In this particular case, there were two reasons why it did not happen. The Secretary of the Commission was ill and only returned on Saturday, in the first place; and in the second place, what with the hearings on section 202 that were in progress in the afternoon, and the necessary administrative work of the Commission to be done in what remained of the day, we have had no opportunity to have a meeting for the consideration of minutes.

The document to which I think you referred, and to which I referred, was not the minutes but the verbatim transcript of the exchanges back and forth between the Commissioners and the General Manager, as recorded perhaps by this reporter, or one of his associates who attends each of our meetings for that purpose. Those transcripts are the raw material out of which the minutes are made.

Senator GORE. Commissioner, to put this in the proper context, and I hope I can state the context fairly, Commissioner Murray made a statement to the committee that the controversial issue of the Dixon-Yates contract was interfering with the atomic energy program, with the primary functions.

You followed the next day with a statement in which you said—and I will have to paraphrase, and I will not undertake to quote you correctly—but as I recall it, you stated to the committee that Commissioner Murray's statements were inaccurate and unfortunate, and that the records were available to him at the time he made the statement.

Well, it seemed to me, as one member of the committee, that you were challenging the veracity of the statement and the integrity of your fellow Commissioner. I do not wish to unfairly interpret your remarks. If there is a question in your mind about that, I will be glad to ask the clerk of the committee to get your exact language.

Mr. STRAUSS. My remarks were directed to the facts, Senator, and only to the facts.

Senator GORE. Well, do you recall exactly your remarks?

Mr. STRAUSS. No, sir, I do not. But you have either quoted them or you have paraphrased them with reasonable closeness.

Senator GORE. Thank you; I undertook to do so.

Following that, to carry on what I hope was a delineation of the sequence, Representative Cole invited Commissioner Murray to substantiate his statements. In the course of your statement, you had also responded to Senator Anderson as I am about to read, and then I will continue with the sequence:

Chairman ANDERSON. Is it your contention that the weapons program will go along with or without the attention of the Commissioners?

Mr. STRAUSS. My contention is that the weapons program is at its alltime high and has been for the year.

Chairman ANDERSON. Would you inform us, then—

continuing to bear in mind the issue before us, whether or not the Commission had been distracted by the issue, and whether or not the Commission had spent time on this question—

Would you inform us, then, if the Dixon-Yates contract has been the subject of any discussion by the Commission since this waiver was granted?

Mr. STRAUSS. I said, Mr. Chairman, that I could recall no such discussion but I am not in a position to say that the opinions may not reveal it.

Mr. STRAUSS. There is a mistake in the transcript there.

Senator GORE. I should say that should be—

minutes may not reveal it. I would be glad to have them searched, and report to you at the next session of the committee.

Chairman ANDERSON. You would not know when the last time was that Dixon-Yates contract was discussed by the Commission?

Mr. STRAUSS. I am sure that the General Manager, at numerous meetings of the Commission, has reported on the progress, but I can recall no subject of discussion because I can recall no issue that has intervened.

Representative PATTERSON. Right at that point, if the gentleman will yield, I wonder if we can get a copy of that record, so that we can follow it. Or do we have it here?

Senator GORE. This was supplied by the clerk, and it is on page 4 of this draft.

Representative COLE. It might be helpful if the same transcript were made available to Mr. Strauss, so that he also could follow it.

Chairman ANDERSON. I would be glade to make it available.

Mr. STRAUSS. I have a copy here, thank you.

Representative VAN ZANDT. May I make a point of order at this time? This is a Joint Committee and I am a House Member.

On page 633 the chairman said:

> From here on out we are going to rule out everything relating to Dixon-Yates until we get through with the purpose of this hearing, which has to do with the progress and state of development of the industrial uses of atomic energy.

Chairman ANDERSON. I did not feel I could, in justice, refuse Chairman Strauss an opportunity to testify.

Representative VAN ZANDT. We have spent an hour on it now and he has concluded his statement and we are wasting more time.

Senator MILLIKIN. Will the gentleman yield? What is the point at issue?

Chairman ANDERSON. Well, Senator Millikin, I sat here realizing that the Commission had met that very morning, that Mr. Murray had offered a motion, that Mr. Strauss and Dr. Libby had said they did not feel they wanted to vote on it, which I thought was discussion; and Mr. Murray as the minutes will show changed it to some degree and he voted for it as Admiral Strauss has said. Admiral Strauss and Dr. Libby declined to vote.

I sat here dumfounded when he said that he could not recall any time that it had come up or when any issue had intervened, because it happened that very morning.

Senator MILLIKIN. I understand that has been gone into, and the Chairman of the Commission said he was not present.

Chairman ANDERSON. He was present when the motion was made.

Senator MILLIKIN. But not at the discussion.

Chairman ANDERSON. Do we have a verbatim report? I think we are going to have to have a verbatim report of that section, because Admiral Strauss supposedly comes in with some comments, and I do not think he would deny making them.

Mr. Nichols, did not Mr. Strauss say something at that time, when Mr. Murray made his first motion?

Mr. SRAUSS. Precisely.

Mr. NICHOLS. It was a very brief discussion on a news report. The telegram was not there yet.

Chairman ANDERSON. It was the subject of some discussion, and here I sat and I thought it was unusual.

Mr. STRAUSS. There was no discussion on the substantive matter of the contract, sir, as I understood your question.

Senator GORE. Mr. Chairman, I do not yield further at this time, regardless of whether my fellow members think that there is an issue. I have the privilege of proceeding, as I believe, and I think that there is an issue. I think there is a grave issue. There is an issue between the statements of two Commissioners of this vital agency. I hope it can be resolved to the credit of both and to the national interest. But I do believe it is necessary to find the basis of understanding.

General Nichols has said there was discussion that day after you returned to the committee meeting.

Mr. NICHOLS. I said there was a very brief discussion of a news report which the chairman read, and we had not yet received your telegram, Senator Gore. This came up in the course of discussion.

Whether Mr. Strauss went over to his desk or whether someone handed it to him or not I do not recall. But what happened was that he read a news report, one of these broad ticker tapes, which carried the copy of your telegram. I am pretty certain at the time no one in the Commission had received it. And Mr. Murray at once put a motion forward, and there is some indication at that time as to whether or not we should act on it, and Mr. Murray proceeded to change his motion in another way.

Mr. Strauss said "I am not prepared to vote on this," or words to that effect. And Dr. Libby indicated something about he did not want to vote on it. I thought it was prefectly normal. Why should they be voting on something that is just a news report at that stage of the game. I thought practically nothing of it, feeling here is something, when we get a telegram, actually have it, and receive it, why then it would be a proper action for the Commission at the next meeting.

I don't believe there was a quorum present and I read the telegram as received to make it a matter of record before the Commission that a telegram had been received.

So I never attributed anything, that there was seriousness of discussion at this particular meeting which occupied just a few words, and in fact the bulk of it is reading the news tape. I think that is the reason why Mr. Murray and Dr. Libby and Mr. Strauss passed on it the same way.

Incidentally, at the time, I was sitting in the same position here, and the witnesses were up in front, but I don't think anyone attributed the fact that this news report had come in, and Mr. Murray's motion, as a serious discussion. Maybe Mr. Murray did.

Senator GORE. I must remind you, General Nichols, that the motion, according to the record which Commissioner Murray made, was not a vote upon a telegram I had sent. It was a motion to proceed with steps to cancel the Dixon-Yates contract.

Mr. STRAUSS. I am sorry, sir; having looked at this transcript before I came down here you will find as a matter of fact in my statement just delivered a few moments ago, that after the news report had been read, including your telegram, Mr. Murray said "In that connection I wish to offer." It was entirely stimulated and generated by the news report of a telegram from you which, if I recollect, stated that you respectfully insisted that the Commission should at once, or immediately, or forthwith, take action upon the matter of canceling. It was the matter of acting on the contract as recommended by the resolution of January 28.

Senator GORE. I would like to take one moment to proceed with the sequence of events.

After you had responded as I have just read, and after Representative Cole had—I believe the word "invited" is a fair word—Commissioner Murray to back up his statements or back down, he came before the committee with a statement showing that the Commission's staff other than the Commissioners and General Manager had spent 2,087 hours since the contract was signed; and that during the last 3 called meetings, during the most recent 2 meetings of the Commission, Dixon-Yates was a subject of discussion or action; and that the last called meeting had to adjourn for want of a quorum because he was busy preparing the statement.

Well, you can imagine the surprise of the committee when one Commissioner has told us that he can recall no discussion and no issue that has intervened, and another Commissioner tells us that on the very morning of the day that you made that statement there was a discussion and an issue was presented.

Now, in light of that, would you mind informing this committee in detail what was said upon your entrance into the Commission meeting, and what action and discussion transpired?

Mr. STRAUSS. I am sorry, I cannot, without reference to the transcript, inform you in detail. But what I would like to do would be to offer now, or read into the record for the benefit of the committee, the Secretariat's statement as to what was discussed at the meetings on November 11, 16, 17; January 28, and February 1 and February 5, with reference to the contract.

May I do so, Mr. Chairman? I can do it rather quickly.

Chairman ANDERSON. All right.

Representative COLE. I thought the question was directed to what happened at the meeting on February 1.

Mr. STRAUSS. At the meeting on February 1, Mr. Cole——

Representative COLE. What was under discussion at the time you entered the meeting?

Mr. STRAUSS. I don't know what subject was under discussion at the time I entered.

Chairman ANDERSON. General Nichols can advise you.

Mr. STRAUSS. I would have to look it up. It was a long meeting, and it had run for an hour and 10 minutes before I entered, and it ran for an hour and 10 or 15 minutes after I entered, and I coudn't tell you.

Chairman ANDERSON. General Nichols, do you have a rough transcript of the minutes of the meeting?

Mr. NICHOLS. I can look it up and find out what was approximately going on at the time.

Representative COLE. Is that necessary? Can we not rely on Mr. Strauss' best recollection of what was under discussion?

Mr. STRAUSS. I don't want to have you rely on my recollection. My recollection has been put at question.

Mr. NICHOLS. At the time Mr. Strauss entered we were discussing the power demonstration reactor program. We were talking about how we would present our testimony and discuss it before this particular committee that afternoon, and also it was stated at that time how much money we had in the budget. We continued with that.

Chairman ANDERSON. Would it be long to read the discussion if there was any with reference to the Dixon-Yates contract from the first time it was mentioned until it ends?

Mr. NICHOLS. Before or after Mr. Strauss came in?

Chairman ANDERSON. After; nothing before.

Mr. NICHOLS. That is something which I don't think I can rule on.

Mr. STRAUSS. There is nothing in it, Mr. Chairman, that I don't think that this committee should not have. I simply raised the question of the precedent that you would be creating and I might suggest this——

Chairman ANDERSON. Very well. I did not think it would involve any secrecy.

Mr. STRAUSS. That is to say some member of your staff could have access to this paper, in our office, and come back to you with the report of what he has seen, instead of our submitting the document to you.

Chairman ANDERSON. I will withdraw the request.

Representative COLE. Please.

Senator GORE. I will yield.

Representative COLE. Go ahead, I will not interrupt.

Senator GORE. Will you proceed, General, to summarize the discussions of the committee after Admiral Strauss entered the meeting?

Mr. NICHOLS. At the time Admiral Strauss entered the meeting we were discussing our presentation before the committee, and in fact, I was getting some very good suggestions on how to present the arguments. We also commented on what we thought we were going to be questioned about. In other words, we were trying to prepare what would be the answers for different types of questions. We discussed the schools that the Commission has underway.

Mr. STRAUSS. Those schools, I might add, are schools for the training of foreigners and others under our program.

Mr. NICHOLS. We were giving information about how many Americans and how many foreigners, so that people understood where some of the reports were that we were going to discuss that afternoon.

We discussed rural electrification.

Representative VAN ZANDT. Was there anything in there about what the admiral and Mr. Durham had for lunch that day?

Mr. NICHOLS. This is before lunch.

Mr. STRAUSS. We entered that afterward, Mr. Van Zandt.

Mr. NICHOLS. We discussed the "L" clearance, and we discussed these study agreements. And practically all of it was on what the testimony would be that afternoon. That was really the thing that I was interested in getting, some thoughts from the Commission as to how you present these arguments, and how do you bring them forth.

Then the question came up of patents, and the number of people. Then we got back on rural electrification and access agreements. Then we talked about the classification; and we talked about Mr. William Laurence for some reason, as to how he happened to get in cleared during the Manhattan District days. Then we talked about study agreements. In other words, it was a general discussion of what we would bring forward here.

I am turning the pages, and I have gone from 33 now to about 52.

Then we discussed patent clauses. Mr. Mitchell talked about that. And then back to commercial agreements.

Mr. STRAUSS. I might add that these matters are not quite as haphazard as they seem. There is an agenda.

Mr. NICHOLS. I am just looking at them, giving the general sense.

Then we discussed food sterilization as an item that might be brought up, and then we discussed what licenses had been issued, issuing one to the Army. We discussed the University of North Carolina.

In other words, it is really a refresher course for the Commissioners of certain things that we expected to come up during the course of the meeting. We have to do a little work ahead of time to come over here and try to answer the questions.

I am now on page 60.

Senator GORE. No body told a good story in the meantime?

Mr. NICHOLS. No, sir; we seldom have time for that, sir.

Mr. STRAUSS. We weren't feeling in the mood, Senator.

Mr. NICHOLS. Occasionally Mr. Strauss tells a good one.

We then went on to the question of supplies of heavy water to parties I will not mention.

I mentioned at that time we might cover the items we had covered, and Mr. Strauss indicated that we had better move on——

Representative COLE. Because time is awasting.

Mr. NICHOLS. Yes. And we then got to the point where I commented we were going to present a legal opinion to the Attorney General on this SEC conference, and at that stage——

Senator GORE. What is the SEC conference?

Mr. NICHOLS. That is the SEC hearing. Right at that stage is where Mr. Strauss was handed a broad tape, and he then read it.

Senator GORE. Before you get on to the broad tape, on the question of the SEC hearings, you are referring there to the hearings on the Dixon-Yates contract?

Mr. NICHOLS. Yes; and there is comment that we had discussed legal questions on the SEC, and Mr. Mitchell——

Chairman ANDERSON. They were not on the SEC; they were on the Dixon-Yates contract.

Mr. NICHOLS. Just a mere statement that the Attorney General was going to present the legal opinion, or we were going to cooperate with the Attorney General on a legal opinion and a statement by the General Counsel.

Then we went on, and during that particular conversation Mr. Strauss was getting this broad tape and apparently reading it, because he then proceeded to read it to the whole Commission, and he read it, and this is starting on page 62. He came in on page 34.

Mr. STRAUSS. I came in at page 34, did you say?

Mr. NICHOLS. Yes; on page 33 or 34.

Representative COLE. The press release came on page 64?

Mr. NICHOLS. Sixty-two and sixty-three. He is reading to the committee, and then Mr. Murray makes his motion.

Senator GORE. Will you read his motion, or is that privileged?

Mr. STRAUSS. I think we would like to reserve it.

Senator GORE. You might summarize the sense of the motion.

Mr. NICHOLS. He started to take some action, and Mr. Strauss said he didn't like to take action prior to a legal opinion, and also the question of the President's direction, where he would have to worry about studying the whole problem again. Then Mr. Murray started to make a statement.

Chairman ANDERSON. Could Mr. Murray's statement by any chance be considered discussion?

Mr. NICHOLS. He said, "I would like to present a motion that the Commission expresses," and he said he would like to make a motion, and then he put in something about ridding the Commission of the contract, draining on time and energy.

Chairman ANDERSON. Is that the Dixon-Yates contract?

Mr. NICHOLS. Yes; the Dixon-Yates contract. And he said it is the Dixon-Yates contract, and Mr. Strauss then stated that in advance of a

legal opinion he didn't want to vote; and Mr. Libby brought up a point about the SEC hearing.

Chairman ANDERSON. Could Mr. Libby's point be regarded as connected with the Dixon-Yates contract?

Mr. NICHOLS. Only the status of it, what is the existing status today, and, in other words, when were the SEC hearings supposed to end and a report given, and if we had anything on that. In other words, is there any point in waiting for the 15th deadline, the deadline date? It is that type of comment.

And then Mr. Murray changed his motion.

Senator GORE. What page is this that you are now on?

Mr. NICHOLS. This is 64, and I am going into pretty much detail. That is 62 to page 64. Mr. Murray said he would like the motion presented in that form, and at that stage Mr. Strauss said "We will record the motion in that form that Mr. Murray has presented, and it will come up for consideration at a later date."

And Mr. Strauss then indicated again to Mr. Murray that he preferred to refrain from voting, and Commissioner Libby indicated the same thing.

Then Mr. Strauss said he had another appointment and something else urgent; and I indicated there was the type of thing that doesn't even go in these minutes and it goes into another one. It pertains to personnel, and it took another 10 pages of discussion, and by that time the man wanted the table to serve lunch for Mr. Durham and Mr. Strauss.

But the point is, out of the whole transcript here, there was just a very brief colloquy here at the end of this particular session that pertained to the news tape, and that came in. I considered the subject came up and was immediately tabled for action at a subsequent date.

Senator GORE. There was a colloquy held or discussion held, whether you want to call it colloquy or discussion; a motion made and action taken on the motion. You just said it was tabled or laid over until another time.

Mr. STRAUSS. No action was taken on the motion, Senator.

Senator GORE. Yet, that very afternoon, let me remind you, Admiral, you told this committee "I can recall no subject of discussion because I can recall no issue that has intervened."

Now, if I may make one further statement relating to this sequence, Commissioner Murray's integrity had been challenged, as I interpreted it, by your own statement.

Mr. STRAUSS. It is your interpretation, Senator.

Senator GORE. If that is not a fair interpretation——

Mr. STRAUSS. My comments were directed to the facts, and I have been careful to make no imputations of character at all. I think that you will find in my statement on the two occasions where these differences occur, that I have specifically disclaimed any imputation of that sort. Let me refresh your recollection.

I said I was confident it was only an inadvertence or lapse of memory on his part in assuming that I was present, if he did assume it, at a meeting or that part of the meeting where there was a protracted discussion of substantive matters in connection with the contract.

Senator GORE. This is the first time you have used the word "protracted."

Mr. STRAUSS. I said "extended," and——

Senator GORE. I am glad to have your assurance that you did not mean to challenge or impute the integrity of Commissioner Murray.

Mr. STRAUSS. Then let me recall that I also testified in respect of my colleague's omission of the fact that he had received indications that the divisions of military application, reactor development and research, had spent no hours on the contract, and that that had not been included in his report to your committee.

I stated that "I hasten to add that I do not believe that my colleague omitted this information at that time with any improper motive."

Senator GORE. But you added, Commissioner, and let me complete your sentence: "But its effect was to give a false impression."

Mr. STRAUSS. It certainly was.

Chairman ANDERSON. Would you explain how it gave a false impression? He was reporting on time spent, and by leaving out the time not spent, how did it give a false impression?

Mr. STRAUSS. He was reporting, Mr. Chairman, on time spent in order to justify the statement that the primary responsibilities of the Commission had suffered.

It seems to me we have labored this, but the primary responsibilities of the Commission are weapons production, reactor development, and research. Neither of those divisions had spent any time on the contract. My feeling was, and is, that the omission of that was a material omission.

Senator GORE. Mr. Chairman, I have not quite completed. Do you still deny that this controversy has distracted the attention and energy of the Atomic Energy Commission's Commissioners and its staff?

Mr. STRAUSS. Oh, no. I think this afternoon's session is a very good evidence of the fact that it has distracted the attention of the Commission and its staff. I realize that I am here, and I should be here, but it is no particular contribution to the task for which I am responsible.

Senator GORE. Do you mean by that to be approaching a meeting of minds with Commissioner Murray, that the controversy has interfered with the atomic-energy program in that it has distracted your time and the time of the Commission employees from its primary function?

Mr. STRAUSS. The controversy has, and the contract has not. There is a big difference, Senator.

Senator GORE. Maybe you and Commissioner Murray are about to approach an agreement.

Mr. STRAUSS. That would be a very fortunate state of affairs.

Senator GORE. Then to take the more positive view, I will ask you one further question, and then I shall desist: How does this controversy or this contract facilitate the development of atomic energy for either peacetime use or for military defense?

Mr. STRAUSS. I have testified on this at considerable length. There are defense industries in the Memphis area, and I don't know what they are, that require power. We were told, and we so testified on 2 or 3 occasions before your committee, that the former Chairman of the Tennessee Valley Authority, Mr. Clapp, had stated and had written that the situation for power in that area would be catastrophic by 1957, I think was the figure.

Senator GORE. If I may respectfully suggest, that is not a response to my question. You are speaking now of the difficulties of the TVA. The TVA does not come within the responsibilities of the Atomic Energy Commission.

Mr. STRAUSS. I don't separate the Atomic Energy Commission's welfare from the welfare of the whole Government and the defense program, of which we are a part. We could not be healthy and the rest of it ill, or vice versa.

Senator GORE. Will you explain now how this contract and this controversy into which you have insisted the Commission plunge itself and remain, have helped or are helping, or will assist the atomic-energy program, either in the development of peacetime uses or military application.

Mr. STRAUSS. Senator, I would be glad to go on with that at some length. I wonder whether you would insist on having it this afternoon or whether I could give it to you in the form of a letter. I would like to choose my words more carefully than I will be able to do in an oral response like this, particularly as I see that everything that I say might be and is properly subject to question as to definition of words.

It is an important point, and I would be glad to prepare a statement on it and submit it either to the committee or to you.

(The information referred to will be found in the appendix to pt. 3.)

Senator GORE. I will agree with that, Mr. Chairman.

Mr. STRAUSS. Is it your desire that I do so?

Representative HOLIFIELD. What was the request?

Senator GORE. My request was that he inform the committee how the Dixon-Yates contract and the controversy which it has promoted has helped, is helping, or will assist in the development of peacetime uses of atomic energy or military application of atomic energy.

Mr. STRAUSS. I am sure, Senator, on reviewing your question you will not expect me to say how the controversy has promoted or has helped.

Senator GORE. I hope there will be no more semantics and excuses on the basis of semantics. The controversy is about the Dixon-Yates contract, and you cannot separate the contract from the controversy. I am sure you would like to, but you will never be able to.

Chairman ANDERSON. Are you completed?

Mr. NICHOLS. Could I make one statement to be sure I didn't create the wrong impression, that there was no discussion on contracts prior to the time Mr. Strauss came in. I stated before this committee there was extended discussion on the legal implications of the contract and even more discussion on the EEI contract, but I wanted to be certain for the record.

Chairman ANDERSON. Admiral Strauss said there was discussion, and I understood you to say there was some discussion later about the legal question.

Mr. NICHOLS. There was also extended discussion before, and I wanted to be sure that was in, and it covered the EEI contract.

Chairman ANDERSON. Now, you indicate all three Commissioners participated in the discussion.

Mr. NICHOLS. Not in the beginning, sir.

Chairman ANDERSON. You did not say that?

Mr. NICHOLS. But later there was this motion that I covered after Mr. Strauss came in.

Chairman ANDERSON. I have received a letter from Mr. Murray, which I believe should be placed in the record at this point.

(The letter referred to follows:)

ATOMIC ENERGY COMMISSION,
Washington, February 10, 1955.

Hon. CLINTON P. ANDERSON,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR SENATOR ANDERSON: During my testimony last Tuesday I was questioned about General Nichols' report to me dated February 7, 1955, and his attached memorandum. I am herewith submitting copies of his memorandum, along with all the statements attached thereto.

Very sincerely,

THOMAS E. MURRAY, *Commissioner.*

ATOMIC ENERGY COMMISSION,
Washington, D. C., February 7, 1955.

MEMORANDUM FOR MR. MURRAY

In accordance with your verbal request of February 1, 1955, I have asked key members of the staff to send me a statement concerning the time they have personally devoted to the MVGC contract subsequent to its signing on November 11, 1954, and also to include a similar statement concerning time and effort devoted by members of the staff reporting to them. Copies of statements are attached from the following individuals:

R. W. Cook, Deputy General Manager
E. J. Bloch, Director of Production
Don S. Burrows, Controller
K. E. Fields, Director of Military Application
J. L. Kelehan, Assistant General Manager for Administration
William Mitchell, General Counsel
S. R. Sapirie, Manager, Oak Ridge Operations
A. Tammaro, Assistant General Manager for Research and Industrial Development
Henry S. Traynor, Assistant General Manager

In addition, there are also attached copies of a memorandum dated February 2, 1955, from the Secretary, and a memorandum dated February 7, 1955, from the Deputy General Manager.

K. D. NICHOLS, *General Manager.*

ATOMIC ENERGY COMMISSION,
Washington, D. C., February 2, 1955.

MEMORANDUM

To: K. D. Nichols, General Manager.
From: J. L. Kelehan, Assistant General Manager for Administration.
Subject: Dixon-Yates.

In accordance with your request as to the amount of time that I have spent on the Dixon-Yates matter since November 12, 1954, this is to advise that I estimate I have spent essentially no time on this matter. The only time I can recall that I spent on it is some general discussion with Mr. Cook at lunch or after hours. I have been assigned no work on the matter.

ATOMIC ENERGY COMMISSION,
Washington, D. C., February 2, 1955.

MEMORANDUM FOR THE GENERAL MANAGER

With reference to the contract with the Mississippi Valley Generating Co., neither I, any member of my staff, and to the best of my knowledge any member of any field organization under the supervision of the Division of Military Application, has devoted any time in work on this matter.

K. E. FIELDS,
Brigadier General, USA, Director of Military Application.

ATOMIC ENERGY COMMISSION,
Washington, D. C., February 2, 1955.

MEMORANDUM

To: K. D. Nichols, General Manager.
From: A. Tammaro, Assistant General Manager for Research and Industrial Development.
Subject: Dixon-Yates effort.

For your information, I personally, and the Directors of the Divisions of Biology and Medicine, Research, and Reactor Development (which includes all civilian and military reactors), who report to me, have spent no time or effort whatsoever on the Dixon-Yates matter before or since November 11, 1954, and, to the best of my knowledge, none of the key personnel of these three Divisions has spent any time or effort whatsover on the Dixon-Yates matter before or since November 11, 1954.

ATOMIC ENERGY COMMISSION,
Washington, D. C., February 2, 1955.

MEMORANDUM

To: K. D. Nichols, General Manager
From: John H. Stumpf, Recording Secretary
Subject: Commission discussion of MVGC contract.

The following information is provided in response to your request for information on Commission discussions of the MVGC contract since approval of the contract.

BACKGROUND

November 10, 1954, meeting No. 1040.—

The Commission:

(*a*) Agreed that, subject to the successful conclusion of negotiations with MVGC officials on the six modifications or amendments to the contract and related documents as presented at the meeting, the proposed contract with MVGC, the proposed interpretive memorandum and the proposed letter contract with the sponsoring companies are acceptable to the Commission; and

(*b*) Noted that the General Manager would authorize the Acting Assistant General Manager for Manufacturing to execute the contract with the Mississippi Valley Generating Co. and other related documents.

DISCUSSIONS

November 11, 1954, meeting 1041.—The General Manager reported that the modifications discussed at meeting 1040 had been accepted by the company and; therefore, in accordance with the Commission decision at meeting 1040, all the documents had been signed. The General Counsel said that he was satisfied that the documents had been properly executed. The Commission then considered and approved a proposed press release.

November 16, 1954, meeting 1042.—The General Manager reported that the Senate Antimonopoly Subcommittee had requested copies of all AEC power contracts and the Commission indicated that there was no objection to transmitting this information. The MVGC contract was not specifically discussed at this meeting.

November 17, 1954, meeting 1043.—The General Manager reported that MVGC had filed an application to the SEC for permission to issue securities.

January 28, 1955, informal meeting of Commissioners Strauss and Libby.—There was discussion of the resolution on the MVGC contract which was then pending before the JCAE. In particular, the rights of the parties to terminate and the effect of a termination on AEC operations was discussed.

February 1, 1955, meeting 1058.—Mr. Murray moved that the AEC take appropriate steps to terminate the MVGC contract. The Chairman and Mr. Libby declined to vote on this motion now. The motion remains before the Commission.

ATOMIC ENERGY COMMISSION,
Washington 25, D. C., February 7, 1955.

MEMORANDUM

To: K. D. Nichols, General Manager.
From: R. W. Cook, Deputy General Manager.
Subject: MVGC contract and related matters considered by the Commission.
Symbol: DMG: RWC.

In response to the question concerning whether or not we had a summary of Commission action on the MVGC contract to date, I obtained the attached summary from the Secretariat. This summary contains the following information:

(*a*) Attachment A, using October 1, 1954, as the starting point, covers references, minutes, and transcripts of Commission meetings for discussions on the contract or related matters from the period October 1, 1954, to January 31, 1955, together with an estimate of the time devoted to discussions on the contract on each occasion.

(*b*) Attachment B covers the number of AEC papers circulated to the Commission since November 11, 1954, which are directly related to the contract.

(*c*) Attachment C covers the effect of MVGC contract discussions on the Commission agenda; that is, whether or not the Commission deferred consideration of scheduled agenda items because of preoccupation with the MVGC contract.

(*d*) Attachment D covers comments on material furnished separately and briefly summarizes the types of papers of all kinds reflecting the Commission consideration of the contract and the activities of the staff beginning with the Commission's first consideration to replace TVA power, which were requested by Mr. Murray and furnished to him.

ATTACHMENT A

COMMISSION DISCUSSIONS OF MVGC CONTRACT DURING PERIOD OCTOBER 1, 1954–JANUARY 31, 1955

To summarize, during this period there were 13 meetings at which the MVGC contract was discussed. We estimate the total time the contract was discussed at about 8 hours.

October 5, 1954, meeting No. 1032.—The Commission discussed the proposed contract at length and:

Approved the form of the proposed contract with the Mississippi Valley Generating Co. submitted by the General Manager in his memorandum of October 4, 1954, subject to:

Reconsideration if an unfavorable opinion is received from the Attorney General in response to the Commission's letter of October 1, 1954, requesting his opinion on the authority of the Commission to enter into this contract including those provisions which relate to Federal income taxes; in this regard it was recognized that it is necessary for the White House to request an opinion from the Attorney General, otherwise one might not be given.

Estimate of time—1 hour (transcript pp. 36–73; 38 pp.) [1]

October 6, 1954, meeting No. 1033.—The General Manager reported that he had informed the Chairman, JCAE, of the Commission action at meeting 1032 and that a hearing had been scheduled for October 13. Estimate of time, less than 5 minutes (1 page of the transcript).

October 7, 1954, meeting No. 1034.—The Commission discussed a proposed reply to a letter of October 6, 1954, from Senator Langer, chairman, Anti-Monopoly Subcommittee of the Judiciary Committee, requesting information on Commission action on the MVGC contract. Estimate of time, 50 minutes (no transcript; notes and minutes of meeting indicated the length of this meeting—10:30 a. m. to 11 a. m. and reconvened 11:40 a. m. to approximately 12 noon).

October 21, 1954, meeting No. 1035.—The Commission considered replies to be made to inquiries from Senator Gore and from the Senate Antimonopoly Subcommittee concerning the Commission's approval of the MVGC contract. Estimate of time, 15 minutes (transcript, pp. 86–97; 11 pp.).[1]

October 26, 1954, meeting No. 1036.—The Commission discussed draft replies to the inquiries from Senators Gore and Langer; estimate of time, 10 minutes (transcript, pp. 2–7; 6 pp.).

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[1] Based on the assumption that 40 pages of the transcript represents an hour's discussion.

October 27, 1954, meeting No. 1037.—The General Manager briefly reported on arrangements for the hearing before the joint committee on November 4 on the proposed MVGC contract. Estimate of time, less than 5 minutes (one page of the transcript).[1]

November 3, 1954, meeting No. 1038.—The Chairman briefly outlined the arrangements for the JCAE hearing on the MVGC contract. The Chairman and the General Manager read the statement they would present. Estimate of time, 30 minutes (no transcript of this portion of meeting; the executive session began at 2:50 p. m. and lasted to approximately 4:30 p. m., it covered 6 items, of which 2 other items weer discussed at length).

November 8, 1954, meeting No. 1039.—The Commission extensively reviewed the proposed MVGC contract and related documents. Time, 1 hour 55 minutes (meeting began at 9 a. m. and concluded at 10:55 a. m.).

November 10, 1954, meeting No. 1040.—The Commission discussed the proposed contract and related documents at length and:

(*a*) Agreed that, subject to the successful conclusion of negotiations with MVGC officials on the six modifications or amendments to the contract and related documents as presented at the meeting, the proposed contract with MVGC, the proposed interpretive memorandum, and the proposed letter contract with the sponsoring companies are acceptable to the Commission; and

(*b*) Noted that the General Manager would authorize the Acting Assistant General Manager for Manufacturing to execute the contract with the Mississippi Valley Generating Co. and other related documents.

Time, 2 hours and 30 minutes (transcript began at 2:40 p. m. and concluded at 5:10 p. m. Only two pages did not concern WVGC).

November 11, 1954, meeting 1041.—The general Manager reported that the modifications discussed at meeting 1040 had been accepted by the company and; therefore, in accordance with the Commission decision at meeting 1040, all the documents had been signed. The General Counsel said that he was satisfied that the documents had been properly executed. The Commission then considered and approved a proposed press release. Time, 40 minutes plus an informal meeting with Messrs. Dixon and Yates. (Formal meeting began 11:30 a. m. and concluded at 12:10 p. m.)

November 16, 1954, meeting 1042.—The General Manager reported that the Senate Antimonopoly Subcommittee had requested copies of all AEC power contracts and the Commission indicated that there was no objection to transmitting this information. The MVGC contract was not specifically discussed at this meeting. Time, less than 5 minutes (no transcript; however, the item was only reported).

November 17, 1954, meeting 1043.—The General Manager reported that MVGC had filed an application to the SEC for permission to issue securities. Time, less than 5 minutes (one page of the transcript).[1]

January 28, 1955, informal meeting of Commissioners Strauss and Libby.—There was discussion of the resolution on the MVGC contract which was then pending before the JCAE. In particular, the rights of the parties to terminate and the effect of a termination on AEC operations was discussed. Estimate of time, 15 minutes (transcript pp. 16–27, 12 pp.).[2]

Attachment B

Materials Reproduced and Circulated to the Commission as AEC Papers—November 11, 1954–January 31, 1955

Fourteen papers totalling 61 pages (not counting cover pages have been circulated to the Commissioners and principal staff, including the General Manager, the Director of Production, General Counsel, and in most cases, the Deputy General Manager, the controller, the Director of Construction and Supply, and the Oak Ridge Operations Office.

These papers contained correspondence and reports on such matters as the AEC's experience with Ebasco Services Inc., interpretations of MVGC contract provisions, the status of AEC hearings, semi-monthly reports to the Joint Committee, and correspondence with members of the Joint Committee.

The secretariat is not in a position to estimate the time which the Commissioners and the staff spent in considering these papers in original or in staff paper form or in preparing reports and correspondence originating in the AEC which were reproduced in these AEC papers.

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[1] Based on the assumptions that 40 pages of the transcript represents an hour's discussion.

Attachment C

EFFECT OF MVGC CONTRACT DISCUSSIONS ON THE COMMISSION'S AGENDA

In reviewing the Commission's agenda and minutes from October 1, 1954, to January 31, 1955, we have found that about 20 items were deferred by the Commission. However, nowhere does the record indicate the reason for deferral of most of these items. Although in several instances, the deferral may have been caused by preoccupation with the contract, the written record will not support that contention.

One Commission meeting, scheduled for Tuesday, October 12, was not held, and the 93d AEC–MLC conference, scheduled for October 14, was deferred until October 18. Again, the written record does not indicate that the Commission's discussions of the contract were responsible for these postponements.

The 96th AEC–MLC conference, originally scheduled for January 27, 1955, was postponed to February 24 for reasons not relating to the contract.

Attachment D

COMMENTS ON MATERIAL FURNISHED SEPARATELY

Copies of papers of all kinds reflecting the Commission's consideration of the contract and the activities of the staff, beginning with the Commission's first consideration of the proposal to replace TVA power, copies of all staff papers, minutes, and transcripts issued to the Commission since the commencement of consideration of the Dixon-Yates contract, as well as copies of press issuances, statements by the Chairman and General Manager before the JCAE, a summary of the contract, a General Manager's report to the Commission on the contract, and contract supplements and letters of understanding are being furnished separately. The Division of Production has in its file additional material which reflects the impact of the contract negotiations on the staff, such as minutes of negotiating meetings with TVA and MVGC representatives, various early drafts of the contract, analysis of contract provisions, and correspondence pertaining to contract negotiations. There is readily available only one file copy of this material which, in volume, occupies about one-half of a file drawer.

FEBRUARY 7, 1955.

To: Commissioner Thomas E. Murray.
From: William Mitchell, General Counsel.
Subject: Time spent on the Dixon-Yates contract by the Office of General Counsel.

This is in answer to your request that I provide you with a statement of the total amount of time that the Office of General Counsel has spent on the Mississippi Valley Generating Co. contract (the so-called Dixon-Yates contract) since November 11, 1954.

From November 11, 1954, to date, the members of this office have spent a total of approximately 354 hours on this contract. Since we keep no daily diaries of the amounts of time that we spend on various projects, this is necessarily an estimate. However, I believe this to be a reasonably accurate figure.

I have a more detailed breakdown in my files in case you care to have it.

FEBRUARY 4, 1955.

To: K. D. Nichols, General Manager.
From: R. W. Cook, Deputy General Manager.
Subject: Time spent on MVGC contract.

This is in response to Mr. Murray's request concerning time I have devoted to the MVGC contract subsequent to its signing on November 11, 1954. There is attached a summary of the time I have applied to the contract and related matters.

The time involved has averaged approximately 7 hours per week. My actual time on the job has averaged better than 50 hours per week. The average time spent on the MVGC contract including negotiations with TVA, when deducted from the 50 hours, still leaves me applying more than the normal workweek to the normal business of AEC.

To the best of my knowledge, there has been no delay in policy or program decisions resulting from my associations with the MVGC contract that has in any way resulted in any delay to the construction, raw materials, production, or weapons programs. Each division director responsible for these programs is thoroughly competent, their Washington and operating organizations are staffed with competent people and the policy or program decisions, once made, are executed by the people responsible for the programs.

Since November 13, 1954, the MVGC contract and TVA negotiations have been a second order of priority and I spend such time as may be necessary on these phases only as my other workload permits.

Summary of time spent on MVGC contract since Nov. 11, 1954

	Hours
Signing of contract, Nov. 11.	
JCAE hearings, No. 11 (holiday)	3½
JCAE hearings, Nov. 12	7½
Visits to Knoxville (TVA), Dec. 16–17	16
Visits to Knoxville (TVA), Jan. 17–19	20
Visits by Dixon and Canaday (3)	2½
Preparation of data for press conference	4
Meetings with Bureau of the Budget:	
Nov. 30, 1954	2
Jan. 8, 1955 (Saturday)	2
Jan. 22, 1955 (Saturday)	4
Meeting with Vogel of TVA, Jan. 15, 1955 (Saturday)	2
Miscellaneous correspondence and questions	6
Meeting with Adams, Jan. 13, 1955	1½
Developing outline for comparison of major power contracts	3
Development of status and analysis of TVA negotiations	3
Miscellaneous telephone calls	2
Development of this tabulation	3
Total	82

Nov. 11, 1954–Feb. 4, 1955, 12 weeks.

FEBRUARY 4, 1955.

To: R. W. Cook, General Manager, Washington.
From: S. R. Sapirie, Manager, Oak Ridge Operations.
Subject: Time spent by OROO employees on the Dixon-Yates contract since November 11, 1954.
Symbol: O: MWS.

In response to your telephone request on February 3, 1955, I have had the attached table prepared showing the approximate number of hours spent by various employees of OROO on the Dixon-Yates contract.

It is difficult to define and assess any detrimental effect on the production program of Oak Ridge operations due to the time spent in connection with the MVGC contract because of the determined effort made by the staff here to minimize such interference. There was, on occasion, a great deal of weekend and night work involved. Some pressing matters were handled by others. Less pressing work was at time delayed, but it is estimated that the maximum delay was 1 week and in the majority of cases less. There was, of course, no delay in actual production.

S. R. SAPIRIE.

Hours by ORO employees on Dixon-Yates contract since Nov. 11, 1954

Name	Engineering and technical matters	Conferences in AEC on contract administration	Discussions with Dixon-Yates on contract administration	Negotiations with TVA	Preparing for TVA negotiations	Total
S. R. Sapirie	1	11	4	32	7	55
J. F. Hennessey		18		32	15	65
I. L. Lind	20	52	16	32	52	172
M. W. Smedberg	2	224	16			242
R. J. Brown	1	7				8
C. G. Sonnen	12	4				16
R. B. Somers	2	13				15
A. R. Sutliff	8					8
H. L. McCracken	12					12
W. J. Hayes		16				16
E. L. Weathers		40				40
L. D. MacKay		6				6
T. F. Thulstrup		6				6
L. B. Stacey		50	16			66
J. R. Moore		4				4
Total	58	451	52	96	74	731

FEBRUARY 5, 1955.

To: R. W. Cook, Acting Assistant General Manager for Manufacturing.
From: E. J. Bloch, Director of Production.
Subject: Time spent on MVG contract.
Symbol: P: EJB.

Reference is made to your request for an estimate of the time I have spent on matters relating to the MVG contract since November 11, 1954. In accordance with our arrangements, I have spent very little time on this contract and the Production Division staff assigned to the matter has, for the most part, worked directly with you and the General Manager.

About the only participation on my part since November 11 has been reviewing replies to miscellaneous correspondence which the Division has received, arranging for the assignment of the contract to Oak Ridge for administration by instructions dated November 18, 1954, and arranging for and reviewing the semimonthly progress reports to the Joint Committee on Atomic Energy. My best estimate is that these miscellaneous matters have occupied my time to the extent of 1 or 2 hours a week, or an aggregate of about 20 hours at the most, since November 11. In addition. I have spent several evenings at home reading the contract and other related documents.

With respect to the Production Division staff, we estimate that about 96 man-days have been expended on MVG contract since November 11. Since there have been 58 working days during the period, the 96 man-days is equivalent to 1.7 men, full time.

The primary assignment of two of the employees involved is electric power and other utility problems. Two other employees spend some time on power matters as part of their normal duties. It is my judgment that neither the production program nor the work of the Production Division has been adversely affected by the staff effort on MVG during this period. With 33 employees in the Division (exclusive of stenographic and clerical help) a workload of this magnitude can be absorbed.

Production division—Time spent on Dixon-Yates contract (man-days) from Nov. 11, 1954, to Feb. 3, 1955

[Man-days]

	Column A general power activities [1]	Column B Dixon-Yates [2]
Huard	10	
Labowitz	4	
Meyer		32
Overtime	16	7
Thaxton	25	5
Blue	10	
Eskildson		19
Overtime	19	3
Drafting (Favale's unit is C. and S.)		9
Total direct	84	75
Indirect (84 times ¼)		21
Total		96

[1] Excludes the time spent on power portions of fiscal year 1955 midyear review and fiscal year 1956 budget since MVGC contract is not involved.
[2] Includes time spent on TVA negotiations and preparations therefor.

FEBRUARY 3, 1955.

To: K. D. Nichols, General Manager.
From: Don S. Burrows, Controller.
Subject: Staff time spent on MVGC contract since November 11, 1954.

Various members of the finance staff, including myself, have spent time intermittently since November 11 in discussions with staff, review of papers, or the preparation of certain supporting data. No records have been maintained on the amount of such efforts, but I have obtained from each individual concerned, his best estimate of the probable total time engaged. The times shown below do not represent consecutive efforts but the best estimate of the probable time spent during the period.

	Man-hours		*Man-hours*
Don S. Burrows	8	Reports and Statistics Branch	4
Walker E. Campbell	6	Audit Branch	10
Wm. J. Pollock	32		
R. B. Stuart	2	Total	72
Orton Boyd	10		

To: K. D. Nichols, General Manager.
From: Harry S. Traynor.
Subject: Time spent on Dixon-Yates.

The following are estimates of time spent, since signing of the Dixon-Yates contract, on Dixon-Yates matters by myself and directors and staff of Divisions whose activities I coordinate:

	Man-hours
Division of Information Services:	
Morse Salisbury	6
Staff	50
Division of Intelligence:	
C. H. Reichardt	0
Staff	0
Division of Classification:	
C. D. Luke	0
Staff	0
Division of Source and Special Nuclear Materials Accountability:	
D. Musser	0
Staff	0

	Man-hours
Division of Organization and Personnel:	
O. Smith	0
Staff	0
Division of Security:	
J. Waters[1]	
C. A. Rolander	0
Staff	3
Assistant General Manager: H. S. Traynor	1

[1] Captain Waters will not return from abroad until the end of this week. However, Mr. Rolander states that he believes Captain Waters has not spent any time on the Dixon-Yates matter.

Chairman ANDERSON. Mr. Cole.

Representative COLE. Mr. Chairman, I should like to propound what might be called a parliamentary inquiry. I understand that there have been scheduled to be heard at the meeting this afternoon approximately six witnesses, most of whom have come here from out of town with expectation of being heard. The minutes of one of the previous meetings of this committee, the public meeting, quotes the chairman of the joint committee as follows:

> From here on out we are going to rule out everything relating to Dixon-Yates until we get through with the purpose of this hearing, which has to do with the progress and state of development of the industrial uses of atomic energy.

In an effort to support the position of the chairman of the Joint Committee, I inquire if it would be acceptable to him to entertain a motion from me at this time that we support the chairman's position, and rule out Dixon-Yates from here on out until these public hearings are concluded. If it is in order, I will so move.

Chairman ANDERSON. Senator Millikin has been faithfully here, and I do not want to chop him off. I would be very happy to have the motion prevail, but I do not want to cut anybody off. How would you feel, Senator Millikin and Senator Hickenlooper?

Senator MILLIKIN. I am sorry to say I was distracted for a moment when the question came up.

Representative COLE. I propose to close the door on Dixon-Yates until the purposes for which these meetings are being held has been completed.

Chairman ANDERSON. As far as the public hearings are concerned.

Senator HICKENLOOPER. If you are asking what I think about it, I think that the record is clear. I think the record speaks for itself. I shall forego the privilege of asking any questions.

But I have one statement in connection with personal privilege that I would like to make, which is very short. Otherwise, I certainly would support the motion.

Chairman ANDERSON. Make your statement now, would you, Senator Hickenlooper.

Senator HICKENLOOPER. This morning's issue of the Washington Post and Times-Herald has a story on page 1 headed "AEC Dispute Stirs Concern Over Weapons."

In the reading of the fifth paragraph in that story, it says as follows:

> Senator Bourke B. Hickenlooper, Republican, Iowa, and Representative W. Sterling Cole, Republican, New York, Strauss' two most articulate supporters on the Joint Congressional Committee on Atomic Energy, have confided their dis-

tress at the way Chairman Strauss is permitting Dixon-Yates to distract top AEC personnel from their prime defense jobs.

I do not speak for Congressman Cole, but so far as my attitude is concerned, it is diametrically the opposite to that. There is not a word of truth in that statement, and there is no honest foundation for it. Such reporting, in my judgment, does a disservice to the public

Representative COLE. Mr. Chairman, would you recognize me since reference has been made to that newspaper item, which was called to my attention only an hour or so ago.

I deny the assertion in the newspaper item on two counts: First, I deny that I am one of the most articulate supporters of the Chairman of the Atomic Energy Commission. Second, I deny ever indicating to anybody my concern that this Dixon-Yates contract has caused serious disruption to the work of the Commission or the Commission's staff.

Senator HICKENLOOPER. If I may also amplify this just a moment with regard to the matter of the articulate support of Chairman Strauss, I am very happy to have been associated with the Chairman of the Atomic Energy Commission in official capacities. I am very happy to have been able to support him in very constructive work that he has done in the whole atomic-energy program over the years. There have been occasions when I have disagreed with him, and I have been frank in my disagreements with him.

I have supported other members of the Atomic Energy Commission. I stated to Commissioner Murray the other day here in open session that I approved of some of his stands, and I thought they were good for the country, as well as other Commissioners. My effort is not to be articulate in any unreasonable support or unreasonable opposition to any particular Commissioner. I shall continue to support what I believe to be sound positions of Commissioners. I shall continue to reserve the right to criticize either privately or publicly, if necessary, those positions that I think are wrong and not in the best interest of the program.

I think this article is unfortunate. Certainly there is not a word of truth in the statement that I have confided to anybody that Chairman Strauss is permitting Dixon-Yates to distract top AEC officials engaged on defense jobs and am worried about it, because quite the contrary is now and has been my opinion.

Representative COLE. Mr. Chairman, I should like to have the opportunity of using Senator Hickenlooper's own words and expressing my own great admiration of the Chairman of the Atomic Energy Commission from the knowledge of his work that I am personally familiar with for at least a decade, and his great public service. When I denied being an articulate supporter, I in no sense intended to deny I was not a supporter of Chairman Strauss and a great admirer of his outstanding public service.

Chairman ANDERSON. Shall we follow Congressman Cole's suggestion that we terminate these matters until the hearings on the development, growth, and state of the atomic-energy industry?

Representative COLE. That we rule out Dixon-Yates.

Representative HINSHAW. I not only wish to follow the direction of the Congressman from New York, but the chairman from New Mexico himself, who uttered those words originally.

Representative HOLIFIELD. Mr. Chairman, no matter how deep you bury it, it is still going to smell bad. I am talking about the contract, now, not the individual.

Chairman ANDERSON. I have an editorial about me in my pocket. I think I will put it away.

Representative DEMPSEY. I agree with the chairman.

Representative PATTERSON. I concur with the statement made by Senator Hickenlooper and the gentleman from New York, Mr. Cole.

Senator GORE. I would like one brief comment. I will not only be a supporter, but an articulate supporter of Admiral Strauss if he will proceed with the primary responsibilities of the Atomic Energy Commission.

Chairman ANDERSON. Thank you, Admiral, for being here today.

Representative COLE. Mr. Chairman, if there is no objection to putting the motion, I think it would be appropriate to have it settled once and for all so that this ugly thing is not going to crop up its head tomorrow and Monday and Tuesday. Let us carry out the scheduled hearings and then if we want to talk about Dixon-Yates thereafter, I am ready to participate.

Chairman ANDERSON. With the understanding that we may have the privilege of going into our own meetings and talking about it if we feel like it, because there may be some steps that the committee may be asked to take.

Representative PATTERSON. Mr. Chairman, may we vote on the motion right now?

Representative HOLIFIELD. Speaking on the motion, in view of the fact that my colleague has designated it as an "ugly thing," I will vote for the motion.

Representative COLE. I was referring to the opposition, of course.

Chairman ANDERSON. I do not know whether we need to call the roll. Without objection, the motion——

Senator GORE. Wait a minute. I have no intention of bringing it up, but if some question arises in which the public interested is involved, I would not wish to deny the American people the right to have the proceedings on this ugly thing reported fully to them.

Chairman ANDERSON. If I understand Congressman Cole's suggestion, it is insofar as these hearings which are on the development, growth, and state of the peacetime uses are concerned, that we keep out Dixon-Yates. If we want to bring it up somewhere else, we may.

Senator GORE. I thought the reference was made if we had further hearings and testimony on the Dixon-Yates contract, it would be in executive session and the press and public would be excluded therefrom.

Chairman ANDERSON. No.

Senator GORE. The more I think about it, the worse it smells.

Chairman ANDERSON. I think he is trying to give me moral support if I rule somebody out of order.

Representative COLE. I am trying to give you legal support as well as moral.

Chairman ANDERSON. Is there any further discussion?

(No response.)

Chairman ANDERSON. Is there objection?

(No response.)

Chairman ANDERSON. Hearing no objection, it is carried.

Representative PATTERSON. Reserving the right to object——

Chairman ANDERSON. I am very sorry. I did not mean to rule you out.

Representative PATTERSON. I understand there has been a motion made.

Chairman ANDERSON. That is right.

Representative PATTERSON. Has there been a vote on the motion?

Chairman ANDERSON. I was trying to do it without objection rather than call the roll. I am merely trying to say that for the rest of these hearings on the development, growth, and progress on the peacetime use of atomic energy, the Dixon-Yatés matter shall not be brought into the hearings. Without objection, the motion is carried.

Thank you, Mr. Strauss.

Mr. STRAUSS. Thank you, Mr. Chairman.

Chairman ANDERSON. There will be about a 5-minute recess.

(Brief recess.)

Chairman ANDERSON. The committee will be in order.

For the record, will you state your name.

STATEMENT OF DR. C. G. SUITS, CHAIRMAN, SUBCOMMITTEE ON ATOMIC ENERGY OF THE COMMITTEE ON RESEARCH OF THE NATIONAL ASSOCIATION OF MANUFACTURERS

Dr. SUITS. My name is C. G. Suits.

Chairman ANDERSON. Would you state your position?

Dr. SUITS. Mr. Chairman, with your permission I will read a printed statement which has this information in it.

Chairman ANDERSON. Thank you. We will wait until that comes.

Dr. SUITS. I might mention it is couched in very simple terms and we doubt if you will need a dictionary for this testimony.

My name is C. G. Suits. I am vice president and director of research of the General Electric Co. and chairman of the subcommittee on atomic energy of the committee on research of the National Association of Manufacturers, and I am speaking today for that association. As you may know, the NAM is a voluntary organization of approximately 20,000 manufacturers, 83 percent of those members have less than 500 employees each. We represent a cross section of American industry, including in our membership manufacturing companies both large and small, more than 1,000 of whom are participating in the country's atomic-energy program. The suggestions which are to be put forth on behalf of the association will be presented partly by myself, and partly by Mr. William A. Steiger of the NAM committee on patents. It is our suggestion that you may wish to hear both presentations before opening the matter for questioning.

As a result of the hearings conducted by the Joint Committee on Atomic Energy during 1954, and the concurrent and subsequent deliberations of the committee and the Congress, a very good start has been made on the modernization of the Atomic Energy Act of 1946. We believe that the changes already made provide a basis for the widespread participation in the development of atomic energy for the many declared purposes of the act, and we are hopeful that your present study will lead to further necessary progress in this area.

It has been stated that a great atomic giveaway is in progress, that the ending of the Government monopoly in atomic energy and the encouragement of widespread participation in the development of this great energy resource is a tremendous windfall which promises large and immediate profits for American industry. This notion is contrary to the facts and requires comment.

The truth is that in spite of great progress which is being made in developing atomic energy for nonmilitary applications and widespread optimism concerning the attainment ultimately of a competitive economic position for nuclear fuels, a very expensive period of research and development lies ahead for industry before that goal will be attained. Industry is convinced that this goal is vitally important and that it must be reached if at all possible because economical power production is a common denominator of all industrial progress and the foundation on which our standard of living rests. We believe that the resources of our competitive free-enterprise system must be brought to bear fully on this objective. There is every evidence that industry is filling and anxious to make the large long-term investments required for this work, providing the basic rules of the game permit competition and incentive, and providing a workable framework of licensing and regulation can be established. But no one industry has any illusions about immediate profits. It is doubtful that industry as a whole will attain a net profit position on the nonmilitary applications of atomic energy during the next decade, as a result of very large expenditures which it will make in this field.

Your committee has requested advice concerning further changes in the Atomic Energy Act of 1954, and particularly the AEC has been asked by your chairman to comment on many aspects of the subject, one of which is "problems or hazards (which the Commission foresees) which may tend to reduce industrial participation in the atomic energy field," and it is on this matter that I wish to comment particularly.

Of the many important problems which face industry in connection with its participation in the development of atomic energy, I would like to stress several, and Mr. Steiger will discuss in detail the unsatisfactory aspects of the present law with respect to patents.

As I have stressed in previous testimony, it is particularly important to future progress that research and development activities in atomic energy be as free from restrictions concerning licensing and control as is consistent with safety and security, and the present law shows progress in this area. The need for the maximum possible encouragement for atomic energy research and development is becoming more apparent daily, particularly in view of the rapid strides which are being made in many foreign countries in this field.

Section 141 (c) of the present law presents some problems which come under this general heading of problems and hazards. I think it was the intent of this section to require the reporting of important atomic discoveries which might affect the national security. For example, if an entirely new chain reaction mechanism should be found, it might have application to weapons and should be reported. However, if the terms of section 151 (c) are interpreted strictly, included is a vast amount of laboratory research of no conceivable concern to the national security or public health and welfare.

For example, minor laboratory applications of tracer materials or a new method of applying radiant paint to the dial of a wristwatch would require reporting under the present law. There is genuine concern on the part of many industrial laboratories as to what their reporting liabilities really are, and as to whether they should engage in tracer work, if extensive reporting is required under section 151 (c). The difficulty with this section arises because of the inclusion, in section 151 (c) (1), of the term "atomic energy," which term should be deleted at this point. The term "atomic energy" properly has a broad definition in the law, but in the context of section 151 (c) (1) it imports an unfortunate and probably unintentional scope.

With increased interest in, and study of, atomic energy by units of industry, the problem of the unusual atomic hazards has assumed a major significance. It is normal in industry to associate business risks with business enterprise. These risks are a proper part of the cost of doing business, and if the risks are unusually large, the total production costs must reflect this risk element of cost. Generally the entrepreneur has the option of insuring his contemplated risk through his own reserves for this purpose, as self-insurance, or may choose to seek protection through an insurance, or may choose to seek protection through an insurance company.

Now let us consider some of the risks associated with the atomic business. A few months ago an unfortunate accident occurred in a power station in Chicago. A very large high-speed turbine wheel ruptured, wrecking the station, with damage reported to be as high as $10 million, and with the loss of 2 lives. Some years ago a curious combination of accidents led to the Texas City disaster with great loss of life and extensive property damage. We have in this country the very best of industrial science and technology, but no one can give absolute assurance that accidents will not occur in the future. In fact the contrary is true, and accidents are bound to occur. The power-station accident in Chicago, while costly in lives and property damage, still comes under the category of a normal business risk which can be covered by reserves or insurance. The total damage expressed in dollars is very much less than the net worth of either the operating company or the suppliers of the generating equipment. Although escaping high-pressure steam caused extensive damage to the station, it did not endanger the community. However, superimpose on top of this power-station accident a reactor accident with escaping fission products and you have a catastrophe of a different order of magnitude. The potential damage might be much greater in dollar magnitude than the net worth of the station operator or the manufacturers of the generating equipment and auxiliaries, and hence self-insurance is not possible. Insurance companies have thus far not been willing or able to write insurance for this extraordinary risk. From an insurance standpoint this kind of an accident is extraordinary in two respects. First, careful design and proper location of reactor plants will reduce the probability of serious atomic accident almost to zero. Secondly, however, if extremely improbable combinations of circumstances should occur, leading to a serious accident, the resulting damage claims might be very great. It is this extremely improbable but not entirely negligible accident for which insurance has thus far been sought unsuccessfully.

It should be emphasized that there is no unwillingness on the part of industry realistically to face up to the unusual risks of the atomic-power business, but from the nature of these risks this protection must be accomplished by insurance. No company has thus far been willing or able to write the required insurance. The solution of this problem is very important to the future development of atomic power and must be faced realistically.

A second matter which we wish to discuss is the provision of section 56 concerning the period of guaranteed fair price "not to exceed 7 years." The AEC has recently stated that this period will run from July 1, 1955. It does not appear that this period of 7 years is equitable or realistic, and we believe it should be extended. This is particularly true when one considers the construction period associated with any production facility. This period is typically 3 to 4 years, which would leave from 4 to 3 years as the term of guaranteed price for special nuclear material to the operator of the facility. The economics of the investment will be influenced substantially by the byproduct price during the initial and possibly later stages of the atomic-power industry, and hence the period has an important bearing on the availability of capital. Amortization periods for the nonnuclear portions of a power facility are typically 30 years. The life of the reactor equipment associated with a power station is unknown, but if Hanford experience is a guide, reactor life will be substantial. We believe that a price period of 10 years from the start of production would provide a more workable solution of this problem.

Overlooking for the moment the serious questions of insurance, financing, and patents, the problems facing the entrepreneur in the atomic-energy business are still formidable. In order to study a business it is necessary to consider all of the important aspects of the business, including the raw materials, the technology, the manufacturing problems, and the markets.

At this point, gentlemen, I would like to mention that we have made a change in the statement which was furnished to your committee this morning, but is additional to the statement which you received yesterday. I am reading the altered statement from this point on.

The required information on all of these subjects—subjects relating to manufacture—are to an important extent classified, and in many cases as high as "secret" access to which requires Q clearance.

Much progress in making required information available to qualified individuals is in prospect as a result of a revision of the AEC declassification guide which is about to be issued. This revision will reduce much information now classified "secret" to the classification "confidential" and hence available to individuals who obtain the new type L clearance. It is imperative, however, that AEC establish promptly a satisfactory basis for the granting of L clearances. This basis might properly include agreements relating to security regulations, but it does not appear that an applicant should, as a result of an L clearance request, be subject to a licensing procedure, or to an assignment to the AEC patents which might subsequently result from the expenditure of the applicant's own resources.

During wartime, and subsequently, it was found necessary to extend suitable clearance to industrial participants in the atomic-bomb program in order to provide them with enough information to permit

them to bring their best efforts to the task. The participation of industry in the atomic-power program will not be effective until we solve the problem of access to essential information, and this access should not be at the cost of reasonable competitive incentives.

I would now like to call upon Mr. Steiger to complete our statement.

STATEMENT OF WILLIAM A. STEIGER, CHAIRMAN, SUBCOMMITTEE ON ATOMIC ENERGY OF THE COMMITTEE ON PATENTS, NATIONAL ASSOCIATION OF MANUFACTURERS

Mr. STEIGER. Mr. Chairman and members of the committee, my name is William A. Steiger. I am vice chairman of the committee on patents of the National Association of Manufacturers, chairman of that committee's subcommittee on atomic energy, and I am speaking today for that association.

During the last 2 years our association has followed with great interest the work of the committee which resulted in passage of the Atomic Energy Act of 1954. Along with Dr. Suits, I had the privilege of appearing before this committee on July 23, 1953, and again on May 19, 1954, and testified with respect to patent provisions of the 1946 act and on proposals for the new act.

Certainly this committee did an outstanding job last year in formulating the issues involved in the atomic-energy program, and in sponsoring legislation which resulted in the new Atomic Energy Act which is undoubtedly a decided step forward in freeing the atom for participation by private industry. I am glad, therefore, to have the opportunity of again bringing the views of NAM to this committee because, during the final days of the enactment of this legislation in the Congress, sufficient time was not available for adequate consideration of the patent aspects. Consequently, some of the patent aspects of the new act are confusing and there is a lack of patent incentive in the act which will operate to discourage development of a peacetime atomic-energy industry, rather than encourage it.

Referring specifically to those sections of the act relating to patents industry finds that while the door to participation including ownership of atomic facilities has been opened by the act, when that door is entered one is met by a three-pronged patent barrier.

First of all, there are sections 153 and 154 relating to compulsory licensing of patents. NAM objects in principle to this provision in the act, because it is not in accordance with the spirit of our Constitution and works a particular hardship on the small or specialty manufacturer. Of more importance, it is not in the interest of advancing this art, if you desire maximum effort from these thousands of parts manufacturers. You will find that compulsory licensing has, in the past, been proposed for general application to our patent laws. However, a review of the congressional hearings on that subject indicates that such a change in our patent laws has been strenuously opposed by the small manufacturer. We, therefore, suggest that you consider the foregoing in any revision you may contemplate in this legislation.

However, the most serious obstacle to private industry is found in section 152 of the new act which refers among other things, to certain affidavits to be filed by any applicant for a patent. The wording of this section, however, is so broad that it actually vests in the Commission any invention or discovery that any private inventor or indus-

trialist might make or conceive. I believe you will agree, gentlemen, that for anyone to accomplish anything of a practical nature in this field, he must, of necessity, have some arrangement or other relationship with the Commission. For example, he will undoubtedly be required to obtain security clearance for some of his personnel; he must make arrangements with the Commission to obtain certain materials; he must apply for a license to build or operate facilities, etc. However, the minute any relationship with the Commission is established, he finds that, while he is embarking on a costly development, each and every invention, which might be made in the course of that development will, in the words of the act, "be deemed to have been made or conceived by the Commission." Under certain circumstances, the Commission is given authority to waive its rights, but this is no comfort to the manufacturer. Please remember that I am now referring to ventures privately financed, because Government-financed ventures are adequately taken care of under section 159.

As we understand it, it was the primary intention of the 1954 revision to encourage the investment of private risk capital, and the work of private inventors in the field. Private risk capital and invention can be encouraged, undoubtedly, if some of the normal incentives of our United States patent system, which have contributed so materially to the development of this country, are offered to the manufacturer who is willing to invest his own money and facilities in such an endeavor. However, a manufacturer cannot afford to expend large sums of money on research and development in this field when the law gives him no such protection, and his competitors are thus left free to duplicate his developments. Certainly, there can be no incentive for private industry to risk the money of its sockholders in such a venture, and the art will not be advanced. It is, therefore, our suggestion that section 152 be eliminated in its entirety because it represents a serious roadblock to the peacetime development of the atom.

Gentlemen, I would like to digress from my paper for a moment or two, because I would like to call your attention to the fact that it seems to me that provision practically hands over the United States patent situation to the foreigners, because the foreign manufacturer and foreign researcher filing a patent application in this country—and they will be filing plenty—has had no relationship or association with the Commission and hence his invention cannot be taken away from him. I do believe if we adhere to that policy that in 10 years we will have the same situation as we have had in the past in jet engines, with American manufacturers trekking to Europe to acquire licenses and pay money.

I also want to call your attention, and I hope your staff will go into a recent decision which was only handed down on January 11, 1955, by the United States Court of Claims right here in Washington. The case is Consolidated Engineering Corp. versus United States. A patent owner sued the Government for infringement of his patent on what is called a mass spectrometer. This mass spectrometer is a standard piece of equipment which can be used in atomic energy and in many other various types of applications. In that decision the court held—this is under the old act, of course—that that wording was so broad that he could not have a patent on that mass spectrometer.

This is of interest, because the 1954 act uses the same language with respect to utilization of special nuclear material as well as production.

For example, the patent sections, particularly section 152, vest in the Commission all inventions or discoveries useful in the production or utilization of special nuclear material.

There has always been some doubt as to how far this language goes in pulling the equipment, such as instruments, turbines, electric generators, switches, and so forth, that is staple articles, into this clause. We now have a court decision which has given that clause very, very broad interpretation.

I think in view of that decision, gentlemen, this certainly should be taken into consideration, because I really believe that was not the intent of the Congress. But it is certainly supported by the wording of the present statute and apparently the court so believes.

Referring to my script, I would like to refer to the third section of the act relating to the patents to which I refer, and that is section 155. In our opinion, this section, as it stands, may very well seriously retard the advancement of this art in this country. It broadly provides that "the fact that the invention or discovery was known or used before shall be a bar to the patenting of such invention or discovery even though such prior knowledge or use was under secrecy within the atomic-energy program of the United States." We assume that such prior knowledge or use would also invalidate any patent which might be inadvertently granted in good faith. For example, under the provisions of this section, a private contractor spending his own money has no way of knowing whether any patent he obtains is valid or invalid. This is because of the fact that material may anticipate his patent which is in the secret archives of the Commission, and is not accessible to the public generally. Such a private manufacturer may make an invention and apply for a patent. He may hope and expect to develop a new industry. He may wish to spend a great deal of time and money in the development of this particular article, in the hope and expectation of obtaining a patent of commercial value. Ultimately his patent may be invalidated because of some prior secret knowledge, such as a sketch or drawing, which has never been built or used, and has never given the public or the Government any practical benefit. Under the law as written, therefore, a manufacturer would find it difficult to justify the investment of much time and money in such an enterprise, and an individual would have great difficulty in obtaining the necessary financing.

We, in the National Association of Manufacturers, appreciate that this committee is interested in advancing this art with private capital; we also appreciate that this committee is interested in preventing the issuance of a patent which covers something which the Government, in secrecy, had done previously; we do not disagree with that premise. However, the present provision is so indefinite that no one, either in Government or outside, can possibly appreciate what it really means or what its effect will be. To prepare a proper provision would necessitate the enrollment of the best informed people in this country and will require time to review the matter thoroughly. It is, therefore, our suggestion that this committee give consideration to the establishment of an advisory committee representing the Commission, the United States Patent Office, industry, and the patent bar, with a view to formulating a provision for your consideration which is equitable and workable.

In conclusion, I respectfully urge that prompt steps be taken to materially revise the patent provisions of this act, in order to make this act a practical and workable tool for the encouragement of private risk capital and private inventors to advance this art.

Chairman ANDERSON. Thank you. I assume that you know that Mr. Cole, who was chairman of the committee when we had the law under consideration, had very strong questions on these patent sections. While we finally passed the bill, it was the understanding of the committee that we would proceed to consideration promptly of the patent sections because Mr. Cole felt it was unwise to pass it just the way we passed it unless it was thoroughly understood by all parties that there would be a revision of it. I can assure you that there will be a reconsideration of it. That reconsideration surely will be given.

Mr. STEIGER. Thank you, sir.

Representative HOLIFIELD. Mr. Chairman, do you want to take these in order?

Chairman ANDERSON. Yes.

Representative HOLIFIELD. Dr. Suits, I address myself to your concern in regard to insurance risk. As I understand it, the private enterprise insurance companies of our country have up to date refused to insure the building of any reactor by outside people. When I say "outside," I mean out of the Government.

Dr. SUITS. I think, Mr. Holifield, they have not been unwilling to insure, except that they have not been willing or able to insure the unusual risk—that is, they have been willing to consider an insurance policy for sums of money which would cover normal risks.

For example, a million dollars or $2 million for a powerplant accident, it is not that element of risk which is in question. It is the unusual risk beyond normal industrial hazards that has thus far not been looked upon with favor.

Representative HOLIFIELD. You are speaking of risk to human life, I suppose.

Dr. SUITS. Primarily; yes.

Representative HOLIFIELD. If the industrial techniques are deemed to be so dangerous that normal insurance companies will not insure as to dollar damage because of their fear of tremendous claims due to loss of human life in case we have a reactor blowup—and I think all sides agree that there can be a runaway situation under certain circumstances—do you think that we ought to build these reactors close to large cities and risk the human lives that might be involved?

In other words, does the factor of their fear to assume a financial risk justify you going ahead and taking a risk to human lives in the cities nearby?

Dr. SUITS. Mr. Holifield, I would like to reply to your question in two parts. First, should we build reactor powerplants near big cities.

I think we should, because I believe that by careful design this risk can be made extremely small.

Representative HOLIFIELD. You believe that, but the insurance companies do not.

Dr. SUITS. Let me comment on the position of the insurance company. I will say in advance I know practically nothing about insurance, but I believe that insurance premiums are generally based on some sort of experience.

Representative HOLIFIELD. That is right.

Dr. SUITS. In this case there has been no experience. Furthermore, the insurance companies have probably not had access to information on which they might develop judgment. So I do not rule out the possibility that the insurance companies might be able to do this. I think they have not had access to the information and have not really had a chance to consider it carefully. I think they should have that access and should be given an opportunity to study it. But it may be that after they have, they will still find they have a very serious problem in having no experience.

Representative HOLIFIELD. I realize that. I believe they should have access to all of the information that is available in regard to the technical risks of a runaway reactor. However, if at the conclusion of that time they find that they cannot take the dollar risk because of their fear of human-life damage and claims, would you think that you could cure the situation by asking the Government to take that dollar risk? Would the taking of the dollar risk justify going ahead?

Dr. SUITS. I think that the dollar risk to the individuals who have to go ahead—let us say the operator of a facility—might be so great that he would be prevented from doing so.

Representative HOLIFIELD. I agree with you. But you are begging the question. Do you want to put human lives in jeopardy when the companies that are accustomed to writing risk insurance on human lives are afraid to do so because the Government has a bigger checkbook?

Dr. SUITS. I would not rule out the possibility that the insurance companies might be willing to do so when they have the facts.

Representative HOLIFIELD. But they cannot have the facts until we have some reactor experience.

Dr. SUITS. Preliminary to some reactor experience it seems to me is the careful consideration of the nature of these risks from their technical standpoint. That information has not been made available.

Representative HOLIFIELD. The information, I think, will be made available under the new law. All information that is along the line of human-life hazard is certainly available. There is no reason why from a security standpoint that should not be made known to responsible insurance companies, and I imagine it has been made known if they have inquired about it.

But you are still faced with the problem. What you in effect are saying is that just because the insurance companies with their hundreds of millions of dollars of reserve will not pool together and take this risk that you want the Government to come in and take the risk. Taking the dollar risk does not eliminate the risk of human life.

Dr. SUITS. That is right.

Representative HOLIFIELD. So it may be a little bit premature to build these reactors near great centers of population unless the facts can be ascertained in advance that this risk does not exist. I don't know whether it exists or not, I might say.

Dr. SUITS. Mr. Holifield, it certainly cannot be said that the risk does not exist. It can be said with great certainty that the risk is almost zero. But it is not thoroughly negligible.

Careful design of a plant can reduce this possibility to the point where it is almost measurable.

Representative HOLIFIELD. If it can, I understand Lloyds of London and other great insurance companies will insure almost everything under the sun.

Dr. SUITS. They will not insure this.

Representative HOLIFIELD. If it can be reduced to the point where it is negligible certainly those companies can take the risk which goes along with other normal industry or you are not ready to go into it.

I would like to talk to you a minute on the fair-price problem. We set a limit of 7 years for the setting of a price on plutonium and U–235, and possible other substances. That was done by the committee because we realized, and you probably are aware of the fact, that over the past 7 or 8 years, the efficiency of production has gone up and therefore the consequent price has gone down. Without revealing as to whether it has gone down a half or a tenth or one-hundredth or whatever the percentage is, let us say that it has gone down 50 percent, for assumption, which probably is not the right fact at all, what you are actually asking the Government to do when you ask them to take on a 10-year contract at a fixed price is that with the history we have of the past 7 or 8 years of this cost going down to subsidize for 10 years an artificial high price on plutonium or U–235; are you not?

Dr. SUITS. No; I think not, Mr. Holifield. Your point is very well taken. The history of the cost of producing fissionable materials has shown that progressively the cost is reduced as increased technology makes possible more fission production. It seems to me that it would be quite proper to take that into account in a price schedule. But if the price schedule or a fixed price is for a 7-year term, that is too short. The improvements in technology could be recognized and be included in a price schedule.

Representative HOLIFIELD. You cannot have a fixed price for 10 years, and have a fixed-price schedule for $10, $9, $8, $7, $6, $5, $4, $3, $2, $1, for instance.

Dr. SUITS. If it were in those terms, it would be definite. On that basis the individual who was putting up the money could figure what his return was going to be and what his byproduct price would be. At the present time he doesn't know what it is going to be beyond a 7-year period. Reduced to a production period of 3 or 4 years, this is far too brief.

Representative HOLIFIELD. Let us assume that the price is now $100 a unit, and that the past record of efficiency shows that it was $1,000 a unit 10 years ago, to make a round figure. On that basis, we might figure that it goes down 10 percent a year for the next 10 years. Would that be an asset to industry to get that kind of a contract, or would it be an asset for them to get it for 7 years at the present price of $100 a unit?

Dr. SUITS. We feel it would be far better if a longer period of years could be encompassed in a price schedule. We think that the past history of the production of these materials is sufficiently complete now so that some extrapolation could be made and some predictions could be made as to what price improvements would be feasible and practical.

Representative HOLIFIELD. Would you be willing to apply the same formula of the past 10 years to the coming 10 years?

Dr. SUITS. I don't know that we can determine a formula, but I think we can extrapolate trends and make a good guess as to what

price improvements would be feasible and include such improvements in a price schedule.

Representative HOLIFIELD. In making your suggestion, as I understand it, for a 10-year period in place of a 7-year period, you are not necessarily saying you sould have 10 years at the present price of the production of plutonium?

Dr. SUITS. That is correct.

Representative HOLIFIELD. You are indicating a longer period but with a realization that it might be graduated.

Dr. SUITS. That is correct.

Representative HOLIFIELD. That is a new suggestion to our committee, and I just wanted to be sure I knew what you meant on that.

Dr. SUITS. There is one further point, Mr. Holifield. We believe whatever this term is, we figure it should be figured from the start of production of a production facility to take into account the unpredictable and unusual construction period of such facilities.

Representative HOLIFIELD. I think at the present time, with your 7-year price, as you probably point out, it would take 3 years to build a reactor, and you would only have the advantage of 4 years of the present price.

Dr. SUITS. That is right.

Representative HOLIFIELD. The next 4 years you would have the right of starting at the present price and having that 4-year bonus before you started figuring efficiency in production to cut down the remaining 6 years.

Dr. SUITS. That is right.

Representative HOLIFIELD. Those two problems that I caught quickly in your presentation.

In your presentation, Mr. Steiger, you go back to the basic problem which we have had of allowing in one instance, in trying to prevent individuals who have had access to this program, getting a stranglehold by patents on the processes that they have had the opportunity of learning, and the procedures and gadgets and so forth, which they have had the opportunity of developing at Government expense, which is what we tried to do in the law. I am not sure that we have done it. We tried to keep those people that have had this opportunity from getting a jump on all the rest of private industry.

There is a problem there, of course, in us doing that.

Mr. STEIGER. That is right.

Representative HOLIFIELD. You cannot apply your reasoning on formal patents to this program because it has not been developed by private industry at their expense. It has been developed by private industry at Government expense. Therefore, the patents that have been acquired up until this time have been rightly in my opinion made available to all of industry, that is, all qualified and cleared people.

In doing that, they have done, I believe, the fair thing. In those patents which have not yet been acquired, but could be acquired immediately—and I am speaking now of important patents, and not small inconsequential patents—there is an obligation on the part of this committee and Government to be fair to all the people that have participated in the program. Do you not believe so?

Mr. STEIGER. We have only objected to this in principle.

Representative HOLIFIELD. I understand. I object to the principle, too. But we are faced with a pecular situation.

Mr. STEIGER. Our association has so many small manufacturers in it, and many of these small manufacturers live by some specialty they have developed.

Representative HOLIFIELD. I think you are interested not only in the small manufacturer. You are representing the views of GE here, are you not?

Mr. STEIGER. No.

Dr. SUITS. He is with the Westinghouse Co.

Representative HOLIFIELD. I know you are with the National Association of Manufacturers. I am talking about the big corporations in this program.

Mr. STEIGER. I can say this. Big corporations don't worry about compulsory licensing. You have no objection from the big corporations about compulsory licenses.

Representative HOLIFIELD. I do not know. We had Babcock & Wilcox here. They are a big organization. They made quite a presentation. So did Dow Chemical.

Mr. STEIGER. If you look at the history of the congressional hearings, when compulsory licensing was proposed for our patent laws generally, you will find it was the small manufacturer that trekked to Washington. The fellow who develops the windshield wipers and develops the automatic control for putting the top up and down.

Representative HOLIFIELD. I think there have been some big patents invented by small people.

Mr. STEIGER. Yes.

Representative HOLIFIELD. You go into this prior art section here, and you make quite a presentation here on that. Of course, there is a great body of procedures and suggested methods and suggested machinery that is registered with the Atomic Energy Commission that has not been patented, some of it because of security reasons. When you say the person has no way of knowing that, I think you are mistaken. I think any manufacturer has a right to go to the Commission and say, "I have an idea of how to do something. Is there anything registered in your files on that?"

Mr. STEIGLER. You mean to go to the Commission?

Representative HOLIFIELD. Because they are the repository of the information.

Mr. STEIGER. They have offices all over. I would like to give you our views on that. If you take our patent laws, you may be the first to invent something, but if you just take the papers and put them in your drawer and do nothing with them, the public does not benefit.

Representative HOLIFIELD. That is right.

Mr. STEIGER. So someone coming along later will get a patent, although you invented it first, because you didn't do anything.

Representative HOLIFIELD. That is right.

Mr. STEIGER. It has always been the fundamental premise in the patent laws that, to protect yourself, you have to do something for the public. You have to do two things; either build a device and operate it, or you have to file a patent application. In other words, the patent system is on the other side of the fence from the secrecy. If you run a business and you want to keep your methods and processes

secret, you can endeavor to do so and not apply for a patent. When you apply for a patent, that patent comes out when it is granted. Under present law a man goes into the business and spends a great deal of money and hopes to get some patents out of it. He hopes to get something out of it that will give him some preference over his competition. Maybe he gets some patents. But he has no way of knowing whether those patents are any good under this provision. It has made a mockery out of the patent provision.

Chairman ANDERSON. Why does he not have a chance to find out if the patent is any good?

Mr. STEIGER. Because someone under this act can have a piece of paper in his drawer in the Atomic Energy Commission or someplace around the Government, and after the manufacturer spent all this development money and gets his patent, they pull out the paper and say, "Your patent is no good because I had that idea 3 years before you did."

It is a difficult thing to write a satisfactory provision. I tried to write one currently. I think if the Commission has built something, or if it has applied for a United States patent, if it has done something to benefit the public, then if they are first, the other patent should be no good. Certainly it should not depend on picking a piece of paper out of a desk drawer.

Representative HOLIFIELD. I see what you are getting at. Let me say this. A lot of those devices or chemical solutions or whatever you might call them, are matters of security, and they are being used in the atomic-energy plants today by the Commission. They have not been patented.

Mr. STEIGER. If they are being used that would be a bar.

Representative HOLIFIELD. You draw the line between prior use——

Mr. STEIGER. And a piece of paper in your desk drawer.

Representative HOLIFIELD. Or prior engineering plans or designs.

Mr. STEIGER. Yes. Something that nothing was ever done about.

Representative HOLIFIELD. What you are saying is that the way to work it would be for the Commission to go through its files and on those things which it can make known that are not security, make them known immediately to everyone, and on those things which are a matter of security interest, keep those under lock and key, but let inventors and manufacturers know that they do have them.

Mr. STEIGER. They would not even have to do that. The Patent Office—suppose it is my application—could send my application over to the Commission.

Representative HOLIFIELD. That is the way they do it now.

Mr. STEIGER. If the Commission is using that invention or if they have filed a patent application before I filed mine, then tell the Patent Office to reject my application. They do not have to disclose if it is a secret thing, and the Patent Office would inform me that there is a prior use in the Commission which is under secrecy, and of course someday I would get the information.

Representative HOLIFIELD. I think there is some merit to your suggestion. We attempted to put up a Patent Advisory Board in the act for the very purpose of passing on the patentable designs or patent applications.

Mr. STEIGER. Yes; compensation.

Representative HOLIFIELD. And passing on whether they were of security value or not.

Representative COLE. Mr. Chairman, if the gentleman would yield for a moment, it is my understanding that it is the intention of the chairman of the joint committee to go into this question of patents as a particular subject for study by the full committee or a subcommittee. Since we do have other witnesses to appear this afternoon, and anticipating the probability and likelihood that this same ground is going to be plowed over at a later time, I think we might suspend discussion of the patent aspect, because I am very much interested in that myself.

Representative HOLIFIELD. I am willing to desist from further questioning. It is a very complicated matter. As long as you put those views forward, I thought it deserved a little discussion.

Representative DURHAM (presiding). Any other questions?

Representative COLE. I did not mean any offense, Mr. Holifield, at all.

Representative HOLIFIELD. No; I understand.

Mr. STEIGER. Thank you very much, gentlemen.

Representative DURHAM. Any further questions?

Chairman ANDERSON. I merely want to say, Dr. Suits, it is always a pleasure to have you down here and have your testimony, and also Mr. Steiger. I do believe since the question of GE got in his testimony, is he not connected with Westinghouse?

Dr. SUITS. Yes, I think the record should be cleared up in that respect.

Mr. STEIGER. My views today are those of NAM and not Westinghouse.

Representative HOLIFIELD. I did not mean to point out specifically one company.

Representative COLE. Let me observe I am pleased to see the representatives of Westinghouse and General Electric sitting side by side, and appearing as witnesses. It is an encouraging sign.

Chairman ANDERSON. I think as a sample of Brotherhood Week, I believe the Westinghouse Building in New York has GE elevators, and the GE Building has Westinghouse elevators.

Mr. Searing, may I say first that the committee was very grateful to you for your letter of January 27. It is an extremely fine letter. I thought if you did not mind, we would put the letter from you and our reply in the record.

Mr. SEARING. I thought of doing that myself. Instead of that we amplify it here in this statement. I have no objection whatever to your putting it in the record.

(The letter referred to is as follows:)

CONSOLIDATED EDISON CO. OF NEW YORK, INC.,
New York, N. Y., January 27, 1955.

Hon. CLINTON P. ANDERSON,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States,
Washington, D. C.

DEAR MR. CHAIRMAN: Thank you for your invitation to testify before the Joint Atomic Energy Committee on industrial development of atomic energy.

Consolidated Edison is a public utility company operating wholly within the State of New York. It engages in the business of generating and supplying electricity in the boroughs of Manhattan, the Bronx, Brooklyn, Richmond, Queens (except Rockaway district), and in Westchester County, and supplies gas service in the boroughs of Manhattan, the Bronx, and a portion of Queens and in Westchester County. Steam service is supplied in a portion of Manhattan.

In 1954 it served approximately 2,800,000 electric customers with 13 billion kilowatt hours of electric energy, 1,350,000 gas customers with 65 million thousand cubic feet of 537 British thermal unit-equivalent gas and 4,000 steam customers with 15 million pounds of steam. The rates and services of the company's electric, gas, and steam utility operations are regulated by the New York State Public Service Commission.

As a public utility, the specific interest of Consolidated Edison in the field of atomic energy lies in the use of nuclear fuels to supplement conventional fuels for power purposes. Since the enactment of the Atomic Energy Act of 1954 we have given increased attention to means by which we would bring such use closer to achievement.

In the first place, we have continued our participation in the work on the fast breeder reactor being carired on by the industrial study group now known as Atomic Power Development Associates. Recently our board of directors authorized a contribution of $400,000 to assist in carrying on this program for 1955. I understand that Mr. Walker Cisler, as chairman of the management committee of that group, will inform you fully on its activities, and we have authorized him to speak for us as regards these activities.

While we support the fast breeder reactor study as a long-range effort, we have felt that at the same time we must explore other avenues if we are to bring nuclear power to our service area as soon as possible. To this end we have had discussions with several of the major manufacturers from whom we normally purchase heavy power-production equipment. These discussions have been based on our intention to finance the cost of a nuclear plant in our normal manner without Government aid. In addition, we anticipated that the project would have to come under the Commission's definition of an advancement of the art.

The discussions with our traditional suppliers have resulted in a number of proposals which are presently under review. We have engaged Vitro Corporation of America to advise us in respect to these proposals. While we have not yet concluded our discussions with these manufacturers, I can state at this time that several proposals appear to be attractive for the long run. At least one appears to be feasible for immediate development. If further study supports these preliminary findings, we expect to be in a position to apply to the Commission for the proper licenses in the near future.

The foregoing summarizes our present position in this matter, and I do not believe I could add much by a personal appearance before your Committee. However, I shall be very glad to appear if the committee feels it would be helpful.

Respectfully yours,

H. R. SEARING, *President.*

Chairman ANDERSON. It is a very fine letter and we would like to have it. You also had a letter of December 7 to the Chairman of the Atomic Energy Commission. Would you either now or subsequently check to see if you have objection to that going into the record?

Mr. SEARING. We have no objection.

Chairman ANDERSON. There are two firm names in there. Would you want those names deleted?

Mr. SEARING. Three firms.

Chairman ANDERSON. You mention two here. Would you rather have them deleted?

Mr. SEARING. I think eventually the firm names have to come out, and they might just as well go in. Eventually it will be three firms.

Chairman ANDERSON. We will also include the letter back to you from the Acting Director of the Division of Reactor Development.

(The letters referred to follow:)

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.,
New York, N. Y., December 7, 1954.

Adm. LEWIS L. STRAUSS,
Chairman, Atomic Energy Commission,
Washington 25, D. C.

DEAR MR. CHAIRMAN: The purpose of this letter is to inform the Commission of the activities and intentions of Consolidated Edison relative to the development of atomic energy as a fuel for the production of power. This letter is the first link in a chain which will, we hope, lead eventually to our submission of a concrete application and proposal to the Commission in accordance with the Atomic Energy Act of 1954.

Recently, we have begun discussions with both General Electric and Westinghouse with a view to obtaining an acceptable offer for the construction of a reactor for us which will be economically useful and will at the same time contribute to the advancement of reactor technology. In order to help in the examination of any offers we receive, we have retained the consultant services of Vitro Corporation of America.

In addition to these actions focused upon the possible construction of a reactor in our own area of service, we are maintaining our support of the fast-breeder research program carried on by the group now known as Atomic Power Development Associates.

With respect to our talks with manufacturers and our relationship to Vitro, we have assumed that, in the preliminary stage, no formal relationship with the Commission was required. We have however kept the staff of the Reactor Development Division advised of our actions and will continue to do so. For example, we have recently consulted with them on the security clearance aspects of our current activities. We may have to obtain additional personnel clearances (unrelated to our status as a project company in Atomic Power Development Associates) in order to analyze any offers which we receive. If by reason of the clearance problem, or for any other reason, the Commission considers that a more formal relationship is necessary at this time, we shall be glad to enter into prompt negotiations to that end.

Sincerely yours,

H. R. SEARING, *President.*

UNITED STATES ATOMIC ENERGY COMMISSION,
Washington 25, D. C., December 17, 1954.

Mr. H. R. SEARING,
President, Consolidated Edison Company of New York, Inc.,
4 Irving Place, New York 3, N. Y.

DEAR MR. SEARING: Your letter of December 7th to Admiral Strauss has been circulated to the members of the Commission and referred to me for reply. The Commission appreciates your informing them of your interest in nuclear power and of the steps you have taken looking toward eventual construction of a nuclear powerplant.

With respect to your reference to the desirability of a more formal relationship with the Commission, we have had under consideration revised procedures for providing access to classified data for organizations interested in commercial applications of atomic energy. When final action has been taken on these procedures, we believe that it will be appropriate and helpful to you to enter into a formal agreement. We will advise you when this action has been completed.

Sincerely yours,

W. KENNETH DAVIS,
Acting Director, Division of Reactor Development.

Chairman ANDERSON. We realize that you are not a voluntary witness, but we are very appreciative of the fact that you are here.

Representative COLE. Mr. Chairman, you would want me to indicate, I am sure, that the witness does not appear under any sense of compulsion.

Mr. SEARING. My story is so simple that I did not see why it could not be covered by a letter. But the staff man on the committee invited me to come, and I thought perhaps I better.

Chairman ANDERSON. We are very happy to have people like Dr. Suits and Mr. Steiger here.

Mr. SEARING. Shall I proceed with the statement?

Chairman ANDERSON. Yes, sir.

STATEMENT OF H. R. SEARING, PRESIDENT, CONSOLIDATED EDISON CO. OF NEW YORK, INC., NEW YORK, N. Y.

Mr. SEARING. My name is H. R. Searing. I am president, the chief executive officer and a trustee of Consolidated Edison Co. of New York, Inc.

I have worked in various capacities with this company, and some of its corporate predecessors over the last 45 years. I have been an officer since 1940. Until I became executive vice president in 1944, my duties were directly concerned with electric and gas production and distribution.

I am a professional engineer and hold a bachelor of science degree from the Cooper Union.

I appear today in response to a request by this committee that I supplement the information contained in my letter of January 27 to the committee and present our views on the problems which we see ahead in attaining our objectives relating to the industrial development of atomic energy.

Consolidated Edison is a public utility company supplying electricity, gas, and steam in the city of New York and Westchester County. It serves approximately 2,800,000 electric customers, 1,350,000 gas customers, and 4,000 steam customers. The rates and services of the company's operations are regulated by the New York State Public Service Commission.

In my letter of January 27, I stated two means by which our company is continuing and increasing our activity in the field of atomic energy.

Our effort in this area began in the fall of 1952 when we joined the industrial study group then known as the Dow Chemical-Detroit Edison Group. Since that time we have maintained an active participation in the research program of that group, now known as Atomic Power Development Associates. Our company spent approximately $200,000 on that program last year and we expect to spend $400,000 in 1955. One of our officers serves on the executive committee of the APDA. We are also furnishing one man continuously to the working group in Detroit and several of our employees are acting as members of the other committees of the group.

I think our experience with this group has been beneficial. It has given us a steady flow of information on developments in the field of reactor technology and it has helped us to visualize the problems which will have to be faced in the actual construction and operation of a reactor.

While we support the fast breeder reactor study being carried on by APDA as a long-range effort, we have also felt that other avenues must be explored even though they may eventually be outmoded by methods not at present sufficiently developed.

The enactment of the Atomic Energy Act of 1954 encouraged us to begin discussions with several equipment manufacturers and with members of the staff of the Atomic Energy Commission to determine if there was a reactor which we could build now and which would accelerate the development of the art.

As evidence of our specific interest we notified the Chairman of the Commission by letter on December 7, 1954, that we were having these talks and requested advice as to whether a more formal relationship with the Commission was necessary for security or other reasons. In a letter of December 17 the Commission told us that such a relationship would be desirable in the future and that it would advise us further.

In carrying on our discussions with the manufacturers we tried to keep certain fundamental principles in mind. We believed that the proper approach was to consider a reactor in the same manner as we would any other addition to our system and to go about the purchasing of a reactor in the same way we would go about the purchase of any other addition. This meant that we would order a finished product from one of our usual suppliers if possible at a firm price.

The second fundamental principle was that we would finance the plant ourselves and that we would not seek Government assistance. A tacit assumption in our thinking was that we should accept whatever charges or prices the Commission established for material used or produced in the reactor. Accordingly we have given our principal attention to the economics of a reactor as a power producer. In that connection we have had very much in mind the fact that the costs of conventional fuels in the New York area are relatively high.

In other words, our chief objective has been to get something done, for we firmly believe that only by actual construction of projects can the art be placed on a commercial basis.

Our negotiation over a period of several months have involved 3 different equipment manufacturers who were asked to give us proposals for a reactor of about 100,000 to 200,000 kilowatts which could be suitably fitted into our system. We retained Vitro Corp. of America as consultants, to assist us in evaluating proposals.

Since our negotiations have not been completed, I think it would not be appropriate to give details regarding cost estimates that have been submitted to us. One of the proposals is attractive in that it combines a demonstrated and conservative technique, with a substantial advance in the guel element, to produce an overall result which we hope will be reasonably competitive with conventional plants in our area. In consequence, we have every expectation of applying to the Commission for licenses in the near future, and we hope to do so prior to April 1.

Of course, many problems remain to be worked out before a reactor can actually be constructed and put into operation. In any new development such as this there are various kinds of technological difficulties which can be solved only by trial and error over an extended period of operation.

One topic which is the subject of a great deal of discussion currently is that of liability and insurance. We do not consider this question a real deterrent in our case. Our system is a large one and accordingly we can assume substantial risks. Furthermore, the reactor we are considering has certain advantages from the safety standpoint. The net

result is that we do not believe that the risks from reactor operation are disproportionate to other risks which we have in our system.

In any event, the additional risk resulting from the operation of the reactor will not arise until the reactor is finished 3 or 4 years from now. In that interval we are confident that the insurance industry will know a great deal more about the hazards involved and will work out some solutions to the problem. It may well be, however, that some kind of Government excess liability insurance similar to that contained in the war-damage law will also be necessary, especially to encourage development of more advanced types of reactors. We do not want to be understood as underestimating the general problem of liability. Certainly in the case of smaller companies it may operate as a serious deterrent to their going ahead with reactor construction and operation. With respect to such smaller companies, some Government-insurance protection might be indispensable to enlist their active participation. So far as we are concerned we intend to go ahead with our plans in line with our present thinking despite the existence of possible problems in this area.

We have not considered that there is any question regarding the availability of special nuclear material for a reactor. It is our understanding from statements that have been made from time to time that there will be a sufficient amount of such material for the operation of the number of reactors that are likely to be constructed. We assume further that the prices set by the Commission for special nuclear material fairly represent the costs of production to the Government, and hence that they will be relatively stable.

We have no illusions that the reactor we are now considering will be the last word in reactor development. On the other hand we think it will represent a real contribution to the advancement of the art.

We want to get on with the job, and as far as possible we want to do it in the same way we normally carry on our business.

Representative COLE. Mr. Chairman, may I interject just the word "bravo".

Representative DURHAM. I would like to say that, too. You are the only man who has appeared before this committee who has not pointed out a problem under the act. You seem to want to go ahead and do this job. I want to congratulate you on your statement.

Chairman ANDERSON. I am so glad those statements were made to you, because I knew it was a very fine statement that you were going to make. Personally, I like what you said on page 3, where you said, "In other words, our chief objective is to get something done." That ought to be, I think, the battle cry around which this whole industry and the great corporations like yours which are in the business, ought to rally, if you go out and get something done, we will not lose in this race to keep up with the rest of the world, particularly with certain nations which we are watching very vitally.

Representative DURHAM. You took the same position that we took in the days that we did not know what we were doing. We completed the job and developed weapons and reactors and everything else, and proved it could be done. That is exactly what we did.

Chairman ANDERSON. It is might fine language also where you said that "the second fundamental principal is that we would finance the plant ourselves and not seek Government assistance." You want Government help, of course, and participation where the Government

should help you, and I think they should. But you are going to have this as a private industry enterprise and very much worth while. I think you have justified the faith that Chairman Cole had in many of the things that he talked about in connection with the writing of the new act.

Mr. SEARING. I am embarrassed by all this tribute. Frankly, it is not warranted.

Chairman ANDERSON. You have not had to listen to some of the testimony we have.

Mr. SEARING. Whoever goes into this with us, the manufacturer, is in it just as much as we are, because he is going to furnish the know-how and stand responsible for the operation of the thing.

Chairman ANDERSON. If the rules and regulations under which you will have to work would be promulgated by the Commission as promptly as possible, would that not make it a little more attractive to more firms like yours to come forward?

Mr. SEARING. I don't think so. I think the firms have to make up their minds first, and I think the papers and forms will follow.

Chairman ANDERSON. That is a good practical business answer, and I am glad to have it.

Representative COLE. It is a courageous statement, that is for sure.

Chairman ANDERSON. Mr. Allardice.

Mr. ALLARDICE. Mr. Searing, I note you say you hope to have an application for a license before April 1. Do you anticipate that your application for a license will be in connection with these bids that the Commission is asking for by April 1, or is this separate? As I understood, they involve some Government contribution.

Mr. SEARING. That is the way I understand it. We did not have that narrow limitation in mind at all. We are going to get some papers before the Commission by April 1 to get some action. It won't involve Government aid. Hence, it would seem to me it would be outside of the Commission's budgetary problems and the five categories that they outline.

Mr. ALLARDICE. Was the Commission familiar with your interest in pushing ahead this rapidly?

Mr. SEARING. Oh, yes.

Mr. ALLARDICE. Thank you.

Representative HOLIFIELD. I, too, want to applaud the sentiments you express here, but in all fairness, I think we ought to point out that you are dependent upon the people you are dealing with to build these reactors. You are not a reactor builder.

Mr. SEARING. No.

Representative HOLIFIELD. So therefore, regardless of the worth of your statements, and I recognize their worth, you are going to be at the mercy of the people that are building these reactors, and the people you are dealing with. Of course, if they do not happen to have your same ideas on going ahead, you are stymied; are you not?

Mr. SEARING. I would not have made that statement if I were not assured that one at least is ready to go ahead.

Representative HOLIFIELD. I hope they are. I noted in your statement here in regard to the safety of these reactors; I am not taking the position that these reactors are necessarily a great hazard. I think there is an element of hazard there. As yet I have not been able to determine it any more than apparently some of these insurance com-

panies who are financially interested in it. But until that is determined, I am going to resist the building of any of those reactors by private industry in thickly populated areas.

Mr. SEARING. We would not want to do that, either.

Representative HOLIFIELD. As a matter of fact, I do not know why they should not be built right within 50 or 75 miles—at least that far away—from a big city, so in case there was an explosion and a contamination of the area, it could possibly be isolated to a certain extent anyway. It would not do as much damage. You would lessen the risk that much of a possible disaster, and that should be more attractive to the insurance companies, too.

I think, however, that there can be reactors built with safeguards which would reduce the risk to where this thing could be handled eventually.

At the bottom of page 5, you say:

> We assume further that the prices set by the Commission for special nuclear material fairly represent the costs of production to the Government, and hence that they will be relatively stable.

You would not advocate that prices would be set which would contain within them a hidden subsidy for the building of private-industry reactors?

Mr. SEARING. Not personally or for my company. That is what I am trying to say. I do not want a subsidy in fuel or in capital costs, and I am not particularly interested just how economical the thing is within limits. I am interested in getting something done.

Representative HOLIFIELD. I think you take a very fine position here. I would say that you should have access like all the rest of American industry to such techniques and devices as have been developed at this time with the taxpayers' money, and that should be available to everybody. I think you take a very fair position on that point.

That is all, Mr. Chairman. Thank you.

Chairman ANDERSON. Mr. Cole.

Representative COLE. I have only 1 or 2 points.

Mr. Searing, on page 4 of your statement, if you will refer to it, please, would you please explain to me what you mean when you say:

> One of the proposals is attractive in that it combines a demonstrated and conservative technique, with a substantial advance in the fuel element.

It is that last phrase that I do not understand. I do not know what you mean.

Mr. SEARING. Let us relate it to the *Nautilus*. It is not the same fuel element as the *Nautilus*, which you might consider to be more or less public knowledge. For instance, two of the manufacturers are offering us things which are well described in the press, only larger. This one represents an advance in design, and is different from anything else. For instance, this is not described in the Commission's release as 1 of the 5 prototypes they would like to see built. It is a converter along a different avenue.

Representative COLE. I understand now.

Referring, as Mr. Holifield did, to your statement where you say you assume that the prices set by the Commission for special nuclear material fairly represent the costs of production to the Government, I do not think that is an assumption you can make, because that is contrary to the facts. There is intended to be no relationship between

the prices fixed by the Commission for this nuclear material which is produced in a nonmilitary reactor with the costs to the Government of that same material.

Mr. SEARING. Perhaps I can best answer this way: Up until the Commission published to "Q" cleared people the pricelist, the woods were full of various prices. The "Q" cleared list came out and the prices were different. From where I sit I am not particularly interested. There is not a great deal of money involved, relatively speaking, against the gains to be made by somebody building one, or rather some people building several. I would like to see a dozen of these things going on around the country.

Representative DURHAM. You are not interested in selling back to the Government? What you are interested in is producing power and selling it.

Mr. SEARING. We hope to burn up what we rent from the Government.

Representative COLE. At any rate, it is an inaccurate statement, Mr. Searing, to say that the price fixed by the Commission represents or reflects the cost of that same material to the Government in its production facilities.

Mr. SEARING. I am glad to be straightened out on that. I assumed that it did bear some relation.

Representative HOLIFIELD. If my friend will yield, I think that is going to be one of the concerns of the committee, that is, to really find out what the basis of their price is, and if it is a fair price, I think every member of this committee wants it that way.

Chairman ANDERSON. We will have some additional discussion anyhow with the Commission.

Representative HOLIFIELD. Most of that part will have to be done in executive session.

Mr. SEARING. I have said this three times now, but frankly the price situation for the fuel is not a major element in our decision. It was the first time that something was pinned down in the form of a list of prices. I assumed that they were based on cost. That is why I made the statement. I am glad to find out I am inaccurate to that degree, and I will cease using such English in the future.

Chairman ANDERSON. Thank you very much for a fine contribution.

Mr. SEARING. Thank you, sir.

Chairman ANDERSON. Mr. Radin, go right ahead.

STATEMENT OF ALEX RADIN, GENERAL MANAGER, AMERICAN PUBLIC POWER ASSOCIATION

Mr. RADIN. My name is Alex Radin. I am general manager of the American Public Power Association, a national trade organization with headquarters at 1757 K Street NW., Washington, D. C. Our association represents over 800 local publicly owned electric utilities in 39 States and Puerto Rico. Membership of the association consists primarily of municipally owned electric utilities, but also includes public utility districts, State-owned electric systems, and a small number of rural electric cooperatives. No Federal power system such as the Tennessee Valley Authority or Bonneville Power Administration is a member of the association.

I would like to begin by reviewing briefly our association's experience thus far in the atomic-energy program, because I believe this background is important to an understanding of some of the comments I wish to make on the development, growth, and state of the atomic-energy industry—which is the subject of your hearing.

Our association long has had an active interest in the atomic-energy program, both from the standpoint of the national policies affecting the electric industry as well as the technical progress which is necessary to make this form of energy competitive with other fuels for the generation of electric power.

One of the earliest manifestations of this interest of our association was shown on February 16, 1953, when a delegation representing various member systems met with Gordon Dean, at that time Chairman of the Atomic Energy Commission. The principal purpose of this meeting was to explore with Mr. Dean, and subsequently with members of his staff, the possibilities of participation by local publicly owned electric utilities in the atomic-energy program, through the formation of a study team or otherwise.

We were advised at this meeting, however, that the production of electric power from nuclear reactors was considered to be economically feasible only in units as large as 200,000 to 300,000 kilowatts capacity. With regard to the formation of a study team, we were informed that the cost of operating such a team approximated about $100,000 a year.

Our association therefore concluded that, insofar as active participation in the atomic-energy program was concerned, we found ourselves excluded, at that time, on two counts: (1) Very few of our member systems were of sufficient size to anticipate the use of 200,000- to 300,000-kilowatt generators in the foreseeable future, and (2) our members—again because of their relatively small size—could not afford an expenditure of $100,000 per year for participation in a study team, particularly when the work of that team had to be directed to the development of reactors of a size which could not be used by the vast majority of our member systems.

Our members therefore decided to hold in abeyance, for the time being, any notion of forming an industrial study team. We did decide, however, to form an atomic power policy committee to make a continuing study of policy and legislative developments in this field. Samuel B. Morris, a past president of our association and general manager and chief engineer of the department of water and power of the city of Los Angeles, was appointed chairman of this committee. This committee immediately set to work reviewing the Atomic Energy Act of 1946 and submitted policy recommendations to the Chairman of the Atomic Energy Commission on April 14, 1953, and on two subsequent occasions Mr. Morris has testified before your committee during your committee's consideration of amendments to the 1946 act.

We did not reopen the question of participation of our member utilities in a study team until November 12, 1954, when our atomic power policy committee met with Dr. Lawrence Hafstad, at that time director of the Division of Reactor Development.

At this meeting, it became readily apparent that the situation had changed markedly since our meeting almost 2 years previous with Mr. Dean and other officials of the AEC. Dr. Hafstad advised us that there did appear to be prospects now for the development of reactors of 5,000 to 30,000 kilowatts of capacity—which was the range of

greatest interest to perhaps the largest number of members of our association. Moreover, we were also advised that it now seemed possible to operate a study team for some $30,000 to $40,000 per annum.

These two developments placed in an entirely new light the prospects of participation of the local publicly owned electric systems in the atomic-energy program. Consequently, we are now in the process of surveying our membership to ascertain whether the necessary funds can be raised to form a study team consisting of the association itself and/or individual members systems of the association.

Reactor demonstration program: In the interim, however, we have been considerably disturbed by the January 10, 1955 announcement by the Commission of the details of the new reactor-demonstration program, under which the Commission set an April 1, 1955, deadline for receiving proposals for Government assistance for the construction of reactors for the development of electric power.

Our objections to this program were stated in considerable detail in a letter which I sent on January 21, 1955, to Chairman Strauss of the Atomic Energy Commission. A copy of this letter was also forwarded to each member of your committee on the same date, and it is likewise attached hereto as exhibit A.

As indicated in my letter to Chairman Strauss, the establishment of the April 1 deadline actually limits participation in the reactor-demonstration program to those few utilities (37 private power companies and 2 public power systems) which, as of January 10, 1955, were already participating in one of the industrial study teams. This condition results from the fact that a utility must have access to classified information in order to submit an effective proposal under this program, and only those utilities which are participating in study teams are given access to classified information. Moreover, the time elapsing between January 10, 1955—the date of the announcement of the reactor demonstration program—and April 1 is not sufficient to permit a utility to obtain for its personnel the Q security clearance which is needed to obtain access to classified information.

In view of this situation, we have registered two objections to this program.

1. No announcement had been made by the Commission previous to its January 10 announcement to the effect that it was necessary for a utility to participate in a study team in order to qualify for Government assistance in the atomic-energy program. Yet, this is the net effect of the new program. Hence, utilities which for good and sufficient reasons have not had an opportunity to participate in this program to date now find themselves excluded initially by a restriction that they were not previously aware of, or a regulation which might be considered an ex post facto limitation.

2. This policy enunciated by the Commission will have the practical effect of initially limiting participation in the atomic-energy program, and hence in the sharing of its benefits, to a relatively few large corporations and two public power systems.

Representative HOLIFIELD. Mr. Chairman. Would the gentleman yield at that point?

Mr. RADIN. Yes, sir.

Representative HOLIFIELD. I want to say this much. If the result of this April 1 deadline is what you state it is in these paragraphs Nos.

1 and 2, I am going to fight vigorously to see that the April 1 deadline is lifted. If this makes it only possible, as you say on page 4, for these people that have been in these study groups to participate and get assistance from the Government—I am speaking now of the $200 million that has been allocated to the Atomic Energy Commission to build reactors—I am going to fight this thing to the last drop, because it is not right.

Mr. RADIN. I am glad to hear that, Mr. Holifield. I think you will find that correct. I have taken careful pains to substantiate those conclusions.

Representative HOLIFIELD. They have said here time and again that they intend to lift this for later participation, but if the allocation of money is taken up by April 1 by these groups, and there is no money left for them to participate in research and development projects with a later applicant, they effectively shut the door in their face and discriminate against them.

Mr. RADIN. Yes. I think you will find also that the announcement covering this reactor-demonstration program gives no firm assurance of a subsequent program. It leaves the door open, but it gives no firm assurance of another program of a similar nature in the future.

Representative HOLIFIELD. Of a different program than that that terminates on April 1.

Mr. RADIN. That is correct.

Representative HOLIFIELD. We have had testimony before this committee on that point, and if that was their original position, I am sure they have backed down publicly on that point.

Mr. RADIN. I see.

Representative HOLIFIELD. They have assured us now. What that assurance means in terms of them being able to effectuate it with funds, if the funds now available have already been granted in these primary programs, that is another question that we have to go into.

Mr. RADIN. Yes; that is correct.

Although the 37 private power companies and 2 public power systems which can participate in this program account for a substantial portion of the electric industry, numerically they are but a small segment of the industry. Most recent published information indicates that there are more than 450 privately owned electric utilities, approximate 2,300 municipal and other local publicly owned electric systems, some 1,000 rural electric cooperatives and several Federal agencies engaged in the production and/or distribution of electric energy to the Nation's homes, farms, industries, and business establishments. Yet, of this large number of electric utilities, aggregating well over 3,750 systems, only 39 (or about 1 percent) would be eligible to participate in the power-reactor demonstration program.

In my letter of January 21 to Chairman Strauss, we urgently recommended that the Atomic Energy Commission extend the April 1 deadline to such a period as will permit all utilities to obtain necessary information that will afford them the opportunity of bidding, on an equal basis, for Government assistance in building nuclear reactors.

We have not yet received a reply to my letter of January 21, and therefore, on behalf of our association, I again renew our plea, to your committee, to take such action as you deem appropriate to extend the April 1 deadline so that this program can be set up on a basis fair to all comers.

Increases danger of monopoly: The atomic-energy program is already fraught with the danger of monopolistic control, and the reactor-demonstration program, as presently proposed, further increases that danger. Monopoly within a service area in the electric-utility field is a necessary practice because of the very nature of the service being furnished, and the only effective competition injected into the industry is that provided by the publicly owned electric systems. When the power of a Government subsidy can be used, however, to enhance and strengthen the monopoly position of a handful of large corporations—as is possible under the reactor-demonstration program as presently constituted—then I believe we are confronted with a situation that presents a grave threat to the welfare of our Nation.

In my letter of January 21 to Chairman Strauss, I stated that if, because of international considerations, the Commission did not feel it could extend the April 1 deadline at this time, we respectfully suggested that the Commission is already authorized by the Atomic Energy Act of 1954 to construct experimental reactors.

"Your Commission," I said, "therefore could go forward with this program itself, as it has been doing in the past, and subsequently make available to all segments of the electric industry the experience and knowledge gained.

Commission should continue own program: In our opinion, irrespective of the course which the Commission finally takes on the reactor-demonstration program, the Commission itself should continue to take an active part in the development of economically feasible power from nuclear reactors.

The reactor-demonstration program—under which primary responsibility will be assumed by non-Federal organizations—and the Commission's own program should not be mutually exclusive.

We make this recommendation for these reasons:

First, evidence presently available to the public indicates that many different types of reactors and variations of types must be built before a design providing economically competitive power is developed. The experimental work which lies ahead appears to be of a magnitude too large for private industry alone to undertake on a scale which will accomplish this objective expeditiously. In any event, the reactor-demonstration program indicates that the Federal Government will bear a substantial part of the bill; as a matter of fact, a leading spokesman for private industry was quoted earlier this week in press dispatches as testifying before your committee that at present private industry "could not carry out accomplishment of a breeder reactor without Government help."

This being the case, the Federal Government, at this stage of technological progress, should shed some of its apparent timidity in his field and face up to the fact that it should continue to bear a large portion of the responsibility for carrying forward progress in this program. If for no other reason, the grave international situation should dictate that we go full speed ahead with developing our atomic resources for power-production purposes, for I do not believe it is necessary to remind this committee that we do not today have in the Pacific Northwest and the Tennessee Valley area the reservoirs of reserve electric power capacity which stood us in such good stead at critical periods during World War II. The lessons of World War II and the Korean war have taught us that we cannot afford to be

niggardly with our own Nation's power supply; to do so is to invite disaster to our productive capacity.

A second reason why we believe that the Government program in this field should progress concurrently with that of non-Federal organizations is that there is a tremendous need for reactors to supply low-cost power for the hundreds of small local publicly and cooperatively owned utilities which are least able to take part financially in the reactor-demonstration program.

Available information shows that there are some 1,250 class C and D municipally owned electric systems (those with gross annual electric revenues of $25,000 to $250,000 a year). These utilities comprise, by revenues, some 40 percent of all local publicly owned electric systems.

By contrast, there are only 150 class C and D privately owned power companies and these represent only about 2 percent of the revenues of all privately owned electric utilities.

I believe these facts alone point up the crux of the problem insofar as the ability of the local publicly owned electric utilities to participate in the reactor-demonstration program is concerned. Obviously, the vast majority of the local publicly owned electric utilities will find it exceedinly difficult, if not impossible, to participate in the reactor-demonstration program to the same extent as the privately owned power companies.

In fact, even the large publicly owned electric utilities—the class A and B systems (those with gross annual electric revenues in excess of $250,000 a year)—are at a disadvantage as compared with the class A and class B privately owned systems. According to Federal Power Commission statistics, the installed capacity of the average class A and B local publicly owned electric utility is 19,500 kilowatts and its net plant investment is $7,675,000, whereas the installed capacity of the average class A and B privately owned electric utility is 223,450 kilowatts and its net plant investment is $71,957,000.

It is granted, of course, that the majority of the Nation's electric consumers are served by the privately owned power companies, and we would not desire to see these utilities—with important responsibilities of service to their customers—deprived of participation in the atomic-energy program.

But by the same token, we do not believe that the local publicly owned electric utilities, because they happen to represent the smaller portion of the electric industry, should be denied an opportunity to share in the advantages of this program. Though small, these utilities represent a significant segment of the electric industry. Most of them have been in existence since the beginning of central station electric service, and today they provide service to some 2,300 cities and towns in every State in the Union. Moreover, their importance in providing a competitive element and home rule in the electric industry gives them a significance far beyond their numbers or size.

Yet, these utilities might well be cut off from the atomic-energy program as a result of the manner in which this program is presently proceeding. For the privately owned utilities, of course, are directing their work toward development of nuclear reactors of larger capacity, while the Commission's program, too, except for the APPR reactor being built at Fort Belvoir, is pointed toward reactors of larger sizes, even though their initial capacity may be in the smaller range.

The important field of developing reactors for the smaller utilities with capacities of 5,000 to 30,000 kilowatts therefore appears to be largely neglected at the present time. Since it is highly doubtful whether these smaller utilities themselves can finance the construction of demonstration reactors without considerable assistance from the Government, we firmly believe that the Commission itself should actively push this work forward.

We submit that there is sound justification for the Commission doing so, not only on the grounds which I have previously mentioned, but for another important reason, namely, that nuclear reactors will be economically feasible first in competition against higher cost sources of power. That being the case, there would appear to be rich potentialities for the use of nuclear reactors in smaller central station electric plants.

FPC statistics for 1950, which is the latest year for which published statistics are available for class C and D publicly owned utilities, show that the cost of generation of these utilities during that year approximated 11.2 mills per kilowatt-hour. This compares with the production cost of 4.4 mills per kilowatt-hour during that same year for the class A and B publicly owned electric utilities and 4 mills per kilowatt-hour for class A and B privately owned utilities.

In other words, a nuclear reactor that could produce electric power for, say, 8 mills per kilowatt-hour would not be attractive to a large class A or B system, but would be exceedingly attractive to the hundreds of class C and D systems.

The higher power costs now being borne by the smaller utilities therefore clearly point up both the necessity and the desirability of the work that should be done by the Atomic Energy Commission in developing reactors of smaller capacity.

Although I have placed considerable emphasis on the developmental work which should be done by the Commission on reactors for the smaller utilities, I hope that this will not be interpreted to mean that the Commission should confine itself exclusively to work on reactors of this size.

To the contrary, the advantages of large interconnected grid systems are well known, and the Commission, as part of its program, should not overlook the importance of constructing some larger reactors which can serve the purpose of "yardstick" plants.

In a field in which the Government has already spent $12 billion, and in which the Government continues to retain ownership to the fuel element, it would certainly appear to be in the public interest for the Government to construct some "yardstick" plants as a means of measuring whether or not the benefits of the Government's investment are flowing unimpeded to the consumer when the Nation's atomic resources are being utilized by private companies.

Being nonprofit electric systems, the local publicly owned electric systems also have served traditionally in the role of the "yardstick"—which is another important reason why they should be given every opportunity to take an active part in the atomic-energy program.

Marketing of surplus power: With regard to the administration of the Atomic Energy Act of 1954, I would like to discuss one other problem which is of concern to the member systems of our association.

Section 44 of the Atomic Energy Act of 1954 provides that publicly

owned electric utilities and rural electric cooperatives shall receive a preference in the marketing of power from nuclear reactors constructed by the Atomic Energy Commission.

Some of our member systems in New York State and New England have been notified that a quantity of power will be available this summer from a reactor being constructed at the West Milton site located about 18 miles north of Schenectady, N. Y. Also, we are advised that a quantity of power will be available in the future from a reactor being constructed by the Argonne National Laboratory at Lemont, Ill.

In connection with the marketing of power from the West Milton plant, we have been advised that some or all of the municipal utilities and rural electric cooperatives within a radius of 100 miles of this plant were telephoned recently by a representative of the AEC to request whether they desired to buy power from this installation. In at least one instance, the manager of the Gas and Electric Department of Holyoke, Mass., asked the AEC representative to place in writing the information about the availability of power from this plant. This was done, and I hereby submit for your information, as exhibit B, a letter dated January 17 to Mr. Francis H. King, manager of the Holyoke Gas and Electric Department, from Mr. J. D. Anderson, manager of the Schenectady office of the United States Atomic Energy Commission.

You are free, of course, to draw your own conclusions from this letter, but to us this letter indicates an astounding method of attempting to market power. We find almost incomprehensible the fact that a utility is being told in effect, let us know within 2 weeks whether or not you are interested in buying this power, and we will tell you the price later.

Moreover, I would like to call to your attention the four conditions listed at the conclusion of the letter. These conditions are such that only a very large utility could absorb this power into its system.

It is entirely possible, of course, that the nature of the experiments to be conducted at the West Milton plant are such that it would be most difficult to schedule the dispatching of this energy on a basis more acceptable to normal load patterns. On the other hand, if the preference condition written into the 1954 act is not to become a mockery, there should be more disposition on the part of the Atomic Energy Commission to make its excess power available on a basis which will permit its use by the so-called preference customers.

Representative HOLIFIELD. Mr. Radin, I have examined this exhibit B, and I agree with you that no small company could possibly buy power on that basis. The third provision says the Government is not obligated to provide any amount of power for any time or any period. In other words, you would be signing a completely blind contract and completely at the mercy of these people.

Mr. RADIN. That is correct.

Representative HOLIFIELD. I see where the Niagara-Mohawk have made them an offer. Of course, they have a big system and I suppose they have such ability to transfer peak loads and valley loads that they could probably absorb it.

Mr. RADIN. Yes. They have sufficient reserve capacity that they can use this power, where a small system that had to use it for baseload just could not depend upon this at all.

Representative HOLIFIELD. It could not possibly do it. Of course, that is something that is rather hard to get around, because this is an experimental plant, and they would necessarily want to be running it at high speed at certain hours and drop it down for cooling tests and all that sort of thing.

Representative DURHAM. It is not dependable power.

Mr. RADIN. Yes, we recognize fully the difficulties in marketing that power. On the other hand, I think there should be some attempt made by the Commission to work with the preference customers to see if some schedule could not be worked out so that the power would be made available on a more satisfactory basis. We appreciate the difficulties of marketing power from an experimental plant. But it seems they would show some disposition to schedule the operations to fit in somewhat better to the load patterns of these municipalities and rural electric cooperatives.

Representative DURHAM. Not being dependable, however, I do not see how they could write a contract that would be accepted by anybody. Any utility concern is certainly not going to sign a contract on nondependable power. You have a contract with somebody and it has got to be dependable.

Mr. RADIN. There are times when utilities use what is called dump power, which is the classification this would come under, which has some value in a large system.

Suggested amendments to the 1954 act: Your committee has invited Mr. Samuel B. Morris, chairman of our atomic power policy committee, to testify on this occasion. Mr. Morris is unable to do so because of other commitments. However, his committee has completed an extensive review of the 1954 act, and Mr. Morris has asked me to transmit to you, at this time, a copy of a report on that act as prepared by his committee, exhibit C. Mr. Morris wishes to reserve the opportunity of presenting oral testimony before your committee at a later date, when I understand additional hearings are to be held by your committee.

Again, on behalf of our association, I wish to express to you our appreciation for the opportunity of presenting our views before your committee.

(The exhibits referred to follow:)

EXHIBIT A

AMERICAN PUBLIC POWER ASSOCIATION,
Washington 6, D. C., January 21, 1955.

Mr. LEWIS STRAUSS,
Atomic Energy Commission,
Washington 25, D. C.

DEAR MR. STRAUSS: Our association, consisting largely of municipal and other local publicly owned electric utility systems in 39 States and Puerto Rico, is most interested in your Commission's press release No. 589, dated January 10, 1955, and headed "AEC Announces Demonstration Program Opening Way for Industrial Power Reactor Development; Proposals for Taking Part Due April 1, 1955."

According to this release, your Commission "has approved a power demonstration reactor program designed to open the way for American industry to develop, fabricate, construct, and operate experimental nuclear power reactors. The aim of the program," the release continued, "is to bring private resources into the development of engineering information on the performance of nuclear power reactors and to advance the time when nuclear power will become economically competitive."

The release further states that "proposals for Commission cooperation may be submitted up to April 1, 1955, by applicants who are willing to assume the risk of construction, ownership, and operation of reactors designed to demonstrate the practical value of such facilities for industrial or commercial purposes. The Commission may accept one or several of the proposals—or it may find that none is acceptable."

Release No. 589 also states that the Commission will consider, within the limits of available funds, providing the following kinds of "cooperation and assistance" to utilities participating in the demonstration program: "Waiving the established Commission charges for loan of source and special nuclear materials up to an agreed-upon amount for a period of up to 7 years from July 1, 1955"; "Performing in AEC laboratories without charge to the licensees certain mutually agreed-upon research and development work"; and "Entering into research and development contracts under section 31a, for the technical and economic information resulting from development, construction, and operation of power demonstration reactors by contractors." Such economic assistance could, of course, amount to a Government subsidy of considerable proportions.

To clarify questions raised by some of our member systems about this release, and to assist our members in cooperating with the Atomic Energy Commission in connection with this program, I discussed certain aspects of this release by telephone on January 10, 1955, with Mr. Charles G. Manly, Acting Chief, Industrial Liaison Branch. Additionally, I had a conference at the Commission on January 13 with Mr. Leonard F. C. Reichle, Assistant Director, Division of Reactor Development (Mr. W. Kenneth Davis, Acting Director, was not in Washington at the time), and Mr. Manly.

In the telephone conversation and later meeting, I attempted to ascertain, first, in what manner the new program differed from the previous program under which Duquesne Light Co. is cooperating with the Atomic Energy Commission in the construction of a nuclear power facility at Shippingport, Pa. Mr. Reichle advised that under the previous program the Federal Government undertook the responsibility for construction of the reactor, and would retain ownership of it, while the cooperating utility was being asked to build the conventional power generating facilities and provide whatever financial assistance it could to the construction of the reactor. Under the new program, however, the electric utility is being asked to undertake primary responsibility for the design, construction and operation of the reactor itself, as well as the conventional power facilities, with the Federal Government providing such financial and other assistance as is indicated in release No. 589.

I then inquired as to whether the Atomic Energy Commission had drawn up specifications for the various types of reactors so that utilities desiring to participate in the Commission's new program could submit intelligent proposals and bids based upon comparable facilities.

I was advised by Mr. Reichle and Mr. Manly that the Commission did not plan to issue formal specifications for reactors, but that a vast body of information was available on this subject and that it was the utility's responsibility to submit proposals based upon this information.

I inquired next as to whether the necessary design information on reactors was of a classified nature, and was advised that this was the case. I then asked whether a utility which had not participated in one of the industrial study teams, and hence did not have "Q" cleared personnel, could present an intelligent bid. Both Mr. Reichle and Mr. Manly responded that, in their opinion a utility which did not have access to classified material could not submit an effective proposal upon the basis of unclassified information.

Mr. Reichle and Mr. Manly stated that, for all practical purposes, about the only course open to utilities not already in a study team was to engage a consulting firm which did have AEC security clearance to submit a proposal in behalf of the electric utility. However, in view of the April 1 deadline, and further in view of the fact that about 3 or 4 months are required for "Q" clearance, top management of a utility which decided to follow such a course could obtain only an "L" clearance. The limited access to classified material which would be possible under an "L" clearance would not permit management to review major aspects of the bid made in its behalf by the consulting firm. After further consultation with another member of Mr. Reichle's staff, Mr. Reichle and Mr. Manly agreed that it would not constitute prudent management for a utility to submit a bid under such conditions. Mr. Manly further remarked that, of necessity, a utility which had to rely upon a consulting firm in such a procedure would be "flying blind." We therefore returned to the original position, which was that only utilities which have been participating in the study program would be able

to submit an intelligent proposal to the Commission under the new reactor demonstration program.

In the course of my meeting with Mr. Reichle and Mr. Manly, I also inquired whether, under this new program, the Commission contemplated confining itself to the "reactor a year" program, or whether more than one reactor might be built under the new program. Their reply was that if sufficiently attractive bids were made by utilities, as many as 2 or 3 reactors might be built, but that in any event no specific limitation on the number of reactors to be built was established under the policy enunciated in release No. 589.

Mr. Manly also observed, during the course of our conversations, that those firms which did not qualify by the April 1 deadline might have an opportunity to do so subsequently, as the Commission contemplated issuing similar invitations under the reactor-demonstration program at a later time. (In this regard, I note that your release No. 589 states, "If the response of industry is favorable and it appears that this procedure will accelerate effective industrial participation in the achievement of practical nuclear power, subsequent dates *may be established* for receiving additional proposals." [Emphasis supplied.]

In view of the situation described above, we wish to register a vigorous objection, on the following grounds, to the policy stated in release No. 589:

1. No announcement has been made by the Commission previously to the effect that it was necessary for a utility to participate in a study team in order to qualify for Government assistance in the atomic-energy program. Yet, this is the net effect of the new program. Hence, utilities which for good and sufficient reasons have not had an opportunity to participate in this program to date now find themselves excluded initially by a restriction that they were not previously aware of, or a regulation which might be considered an ex post facto limitation.

(Parenthetically, we might note that as early as February 16, 1953, officials of a group of representative members of our association met with Mr. Gordon Dean, at that time Chairman of the Atomic Energy Commission, and other officials of the Commission to discuss the possibilities of participation in the atomic-energy program. We were advised at that time, however, that development of nuclear reactors for generation of electric power appeared to be economically feasible only for larger utilities which could install generators with a capacity of 200,000 to 300,000 kilowatts. Since the bulk of the membership of our association consists of municipal and other local publicly owned utilities with average installed capacity of considerably smaller size than 200,000 to 300,000 kilowatts, we felt that our participation in the atomic-energy program at that time was not feasible. It was not until November 12, 1954, when our atomic power policy committee met with Dr. Lawrence Hafstad, at that time Director of the Division of Reactor Development, that we were advised of the possible economic feasibility of reactors of 5,000 kilowatts of capacity, which would be appropriate to the requirements of the many smaller utilities comprising our membership. Our organization therefore is only now in the process of considering the organization of a study team.)

2. This policy enunciated by the Commission will have the practical effect of initially limiting participation in the atomic-energy program, and hence in the sharing of its benefits, to a relatively few large corporations, and two public-power systems.

According to information published to date, only 37 privately owned electric utilities, 1 Federal power system, the Tennessee Valley Authority, and 1 local publicly owned electric utility, Consumers Public Power District of Columbus, Nebr., have been approved by the Commission for participation in study teams. Hence, these would be the only organizations which would qualify for participation in the demonstration program.

Although these 37 private power companies and 2 public power systems account for a substantial portion of the electric industry, numerically they are but a small segment of the industry. Most recent published information indicates that there are more than 450 privately owned electric utilities, approximately 2,300 municipal and other local publicly owned electric systems, some 1,000 rural electric cooperatives, and several Federal agencies engaged in the production and/or distribution of electric energy to the Nation's homes, farms, industries, and business establishments. Yet, of this large number of electric utilities, aggregating well over 3,750 systems, only 39 (or about 1 percent) would be eligible to participate in the power reactor demonstration program.

It is true, of course, that your release No. 589 states that "subsequent dates may be established for receiving additional proposals" from utilities, beyond

the April 1 deadline. However, even if other utilities are in position to qualify for participation in this program at a later date, undoubtedly those 39 utilities presently eligible to make bids under the April 1 deadline would be expected to bid upon those types of reactors most likely to be economically feasible, and only those reactors less attractive from an economic standpoint would be available for demonstration purposes for later applicants.

Considering the fact that over $12 billion of Government funds, contributed by all the people of the Nation, have been invested thus far in the atomic-energy program, and considering further the fact that your Commission now contemplates direct Government subsidies to those utilities participating in the demonstration program, it does not appear in the public interest to make such funds available only to a relatively small segment of the industry. Moreover, there are clear indications that in the foreseeable future the atomic-energy program will have a tremendous impact upon the electric industry, and those utilities which are in position to capitalize on this program initially through participation in demonstration programs will have achieved a know-how, largely at Government expense, which would put at a disadvantage those utilities which are not eligible to receive Government assistance.

Our association does not in any sense question the propriety or necessity of your Commission's disclosing only to properly cleared personnel specifications or such other classified information pertaining to reactors as will permit a utility to present an intelligent bid to the Commission for Government assistance.

However, we do firmly believe that the April 1 deadline unnecessarily and unfairly restricts competitive bidding on these reactors to a relative handful of large utilities. In fact, although we presume they are eligible, your release does not even mention participation of publicly or cooperatively owned utilities in this program, but refers only to private resources. We therefore urgently recommend that your Commission extend the April 1 deadline to such a period as will permit all utilities to obtain necessary information that will afford them the opportunity of bidding, on an equal basis, for Government assistance in building nuclear reactors.

If, because of international or other considerations, your Commission does not feel that it is desirable to delay this program for such a period, may we respectfully suggest that the Atomic Energy Commission is already authorized by the Atomic Energy Act of 1954 to construct experimental reactors. Your Commission therefore could go forward with this program itself, as it has been doing in the past, and subsequently make available to all segments of the electric industry the experience and knowledge gained.

In this regard, may we also note that the new reactor demonstration program represents a decided point of departure from the reactor program previously announced by AEC. It is our understanding that the former program contemplated a reactor a year, each of a different type, to be built by AEC, with the knowledge derived therefrom to be made available ultimately to all segments of the electric industry. The new policy, however, could result in the various types of reactors in this program being built exclusively by private power companies, with little assurance that other programs of this type will be made available in the future to publicly owned electric utilities.

Our association has one other point of interest in connection with the Commission's release of January 10, and that has to do with the contribution which members of our organization might be in position to make toward the construction of a nuclear reactor. In your release No. 589 it is stated that one of the criteria which will be employed in evaluating proposals from utilities is, "Risk to be assumed by the maker of the proposal." Presumably, your Commission will give more favorable consideration to those utilities which can assume a larger portion of the risk.

In making such evaluation, we urge you to consider the fact that Duquesne Light Co., which is spending $14 million toward the cost of constructing a nuclear power facility at Shippingport, Pa., has been awarded a 75 percent tax writeoff on that company's investment in this nuclear power facility. The Federal Power Commission has stated that such a tax writeoff has "the precise effect of a grant by our Government to a certificate holder of an interest-free loan."

Obviously, therefore, the private power companies, which are the recipients of such interest-free loans, are in position to make more favorable proposals than the local publicly owned electric utilities, and we hope that your Com-

mission will take this factor into account in evaluating such proposals as might be made by publicly or cooperatively owned utilities.

In closing, I wish to reiterate that the earnest desire of the publicly owned electric utilities of the Nation is to do everything possible to speed the peacetime utilization of nuclear energy for the production of electric power. It is in this spirit of cooperation that this letter is written. For we believe that, rather than being virtually shut out from an active part in bringing about economically feasible electric power from nuclear resources, the Nation's publicly owned electric utilities should be utilized to the fullest extent possible. The publicly owned electric utilities comprise an important segment of the electric industry, and they have played a vital part in producing an abundance of electric power at low rates; these utilities, therefore should be afforded every opportunity to contribute to the advancement of the atomic-energy program and to the widespread diffusion of its benefits.

Because of that committee's general interest in the atomic energy program, we are taking the liberty of sending a copy of this letter to members of the Joint Congressional Committee on Atomic Energy.

Sincerely,

ALEX RADIN.

EXHIBIT B

UNITED STATES ATOMIC ENERGY COMMISSION,
Schenectady, N. Y., January 17, 1955.

Mr. FRANCIS H. KING,
Manager, Holyoke Gas and Electric Department,
Holyoke, Mass.

DEAR MR. KING: As discussed with you by telephone, a quantity of excess electrical power will be available for disposal late this coming summer at our West Milton site located about 18 miles north of Schenectady, N. Y. As required by the Atomic Energy Act of 1954, the Atomic Energy Commission will give preference and priority to public bodies and cooperatives in the sale of this power. Accordingly, it is requested that we be advised if you are interested in purchasing this power. We have an offer from Niagara-Mohawk and we have also contacted a few other privately owned utilities which are nearest the site. After we determine which of the privately owned and preference utilities, if any, are interested, it is planned to contact interested parties relative to the establishment of a rate and selection of a buyer. In order that the arrangements for the sale of this power may be completed, it is requested that we be advised within the next 2 weeks, or sooner if possible, whether or not you are interested in purchasing this power.

The power will be available at bus bars at the West Milton site at 33,000 volts 3-phase, 60-cycle alternating current. This power is a byproduct of the operation of a development facility and as such will not be firm power. The amount of power will vary from 0 to 10,000 kilowatts. It will not be possible to schedule the amount of power available or the time and period that this power will be available. It is anticipated that as much as 6 million kilowatt-hours of energy per year may be available, but it will not be possible to guarantee any given amount of power will be available. It is expected that this power will be available beginning in the latter part of this summer and will continue for a period of 3 years.

The sale of this power will be subject to the following conditions:

1. The purchaser must be ready to receive this power late this summer (July 30, 1955).
2. All of the excess power available must be purchased.
3. The Government is not obligated to provide any amount of power at any time or for any period.
4. The power must be accepted at the site, and the purchaser must make all arrangements for transmittal.

Sincerely yours,

J. D. ANDERSON, *Manager.*

EXHIBIT C

REPORT ON ATOMIC ENERGY ACT OF 1954 BY ATOMIC POWER POLICY COMMITTEE OF THE AMERICAN PUBLIC POWER ASSOCIATION, SAMUEL B. MORRIS, COMMITTEE CHAIRMAN

(Presented to Joint Atomic Energy Committee, February 10, 1955.)

GENERAL WELFARE

Section 1 of the act gives a declaration of policy in the following words:

"It is therefore declared to be the policy of the United States that—

"(a) the development, use, and control of atomic energy shall be directed so as to make the maximum contribution to the general welfare, subject at all times to the paramount objective of making the maximum contribution to the common defense and security; and

"(b) the development, use, and control of atomic energy shall be directed so as to promote world peace, improve the general welfare, increase the standard of living, and strengthen free competition in private enterprise."

It is significant that although rather frequent references throughout the act are made in the interests of "the maximum contribution to the common defense and security" as the basis for various actions, essentially no reference is made in the body of the act to the promotion of the general welfare. It therefore seems desirable that in section 3, wherein the purpose of this act is stated, there should be included a clause giving reference to the promotion of general welfare. This might be done by amending section 3 (c) so that the words "national welfare" are replaced by the words "general welfare" which has a broader meaning. (See also later comment under the heading "Licensing and General Welfare" pertaining to sections 103 and 104.)

DISPOSITION OF ENERGY

Section 44 is the section under which byproduct energy produced in experimental facilities of the Commission may be transferred to publicly, cooperatively, or privately owned utilities at reasonable and nondiscriminatory prices. This section contains a preference clause which reads as follows: "In contracting for the disposal of such energy, the Commission shall give preference and priority to public bodies and cooperatives or to privately owned utilities providing electric utility services to high-cost areas not being served by public bodies or cooperatives."

It is believed that this sentence is somewhat ambiguous in that the reference to such energy could be to either heat or electric energy as inferred in the first part of section 44 or could be only electric energy to which reference is made in the sentence immediately preceding. It is suggested that the word "such" be replaced by the word "any". Furthermore, the wording of the latter portion of the preference clause is subject to the interpretation that a privately owned electric utility by virtue of its own high rates to a community not being served by public bodies or cooperatives might receive a preference over and above public bodies and cooperatives with lower rates. The wording should be so drawn as to indicate that the high cost is that resulting from inherently high fuel costs and not by virtue of the high cost of electric utility service.

In order to not unduly limit the Atomic Energy Commission in its production and use or sale of electric energy, particularly in firming up more continuous power production from reactors, it is suggested that the last sentence of section 44 be omitted. This sentence presently reads: "Nothing in this act shall be construed to authorize the Commission to engage in the sale or distribution of energy for commercial use except such energy as may be produced by the Commission incident to the operation of research and development facilities of the Commission, or of production facilities of the Commission."

CHARGES FOR THE USE OF SPECIAL NUCLEAR MATERIAL

Under section 53 the Commission is authorized to distribute nuclear material to qualified applicants for licenses to carry on various kinds of work. In determining the reasonable charges to be made by the Commission for the use of such special nuclear material it is indicated, among other things, that in addition to consideration of the cost thereof the Commission shall take into consideration the energy value of the special nuclear materal in the particular use for which

the license is issued. It is pointed out that this criteria might be interpreted to permit the fixing of a price based on the value of other competing fuels or sources of energy and thus not give the Nation the benefit of lower costs that might ultimately be developed for the production of the nuclear fuels. It is to be pointed out that although the inclusion of the wording is probably for the purpose of giving competitive costs for the energy in early stages of development it might result ultimately in costs of nuclear energy not following along with improvements in the art of its production.

LICENSING AND GENERAL WELFARE

Under sections 103 and 104 provisions are made for the licensing of persons to have facilities utilizing nuclear material or facilities for the production of nuclear material either for industrial or medical purposes. In both these cases emphasis is given on the matter of protecting health and minimizing the danger to life or property. It is also stated that the licenses should not be issued to any person where the issuance of a license would be inimical to the common defense and security or to the health and safety of the public. It is believed, in accordance with the declaration of policy in section 1, that it would be desirable to make reference to general welfare by inserting at the beginning of sections 103 (b) and 104 (b) the words "In conformance with making the maximum contribution to the general welfare". Another proposal to accomplish the same purpose would be to amend the last sentence in each of sections 103 (d) and 104 (d) so that they would read: "In any event, no license may be issued to any person within the United States if, in the opinion of the Commission, the issuance of a license to such person would be inimical to the general welfare or the common defense and security or to the health and safety of the public."

ANTITRUST PROVISIONS

In the avoiding of monopoly the Atomic Energy Commission through the provisions of section 105 rests on the normal provisions of the various antitrust acts which are cited by reference. Provisions are set up whereby the Commission will establish liaison with the Office of the Attorney General in the exchange of information that would avoid the developments of monopolies to the extent that the present laws are adequate. It is the recommendation of American Public Power Assaciation's atomic power policy committee that the Joint Atomic Energy Committee of Congress, in connection with its review of the act, make a more detailed study to determine the adequacy of the present antitrust laws with respect to the potentialities involved in the development of atomic energy production and utilization. We believe the Joint Committee should take cognizance of the fact that the Office of the United States Attorney General is now investigating patent monopoly in the radio industry and should ascertain whether such condition might not reasonably develop also in the atomic-energy field.

PATENTS AND INVENTIONS

Under the present act full reservations against granting of patents in the military weapon field are provided. For inventions conceived during Commission contracts that may be useful in the production and utilization of special nuclear material, provisions are such that the Commission may either waive its claim or direct the Commissioner of Patents to issue the patent to the Commission with suitable provisions for appropriate hearings on the matter. On nonmilitary utilization the Commission may, after a hearing, declare any patent to be affected with the public interest. Under this procedure the Commission is licensed to use the invention or any person may apply to the Commission for license to use the invention to the extent it is necessary in the conduct of an activity authorized under the act. Thus, through alert action by the Commission patent control and cross licensing of patents can be provided. However, as finally amended, section 153 (h) of the act states "The provisions of this section shall apply to any patent the application for which shall have been filed before September 1, 1959." Under this provision any patent applied for after this date, approximately 5 years hence, would not come under the control of the Atomic Energy Commission. The announced schedule of power-reactor development indicates it is not conceivable that developments in the field of industrial application of atomic energy will be accomplished so rapidly that the Government can abandon the protection to its present position in this field so quickly without at the same time affording a basis for the development of a patent monopoly. We

urge your committee to amend this section to provide for a longer period of not less than 10 years. Moreover, to minimize the danger of a patent monopoly being developed largely through the benefit of Government expenditures, we also urge that the compulsory licensing features of the Atomic Energy Act of 1954 be simplified and strengthened.

DIXON-YATES CLAUSE

In section 164 the Commission is authorized to enter into new contracts or modify or confirm existing contracts to provide for electric utility services. Insertion in this section by a single sentence provided the basis for the much discussed Dixon-Yates contract. This sentence is as follows:

"The authority of the Commission under this section to enter into new contracts or modify or confirm existing contracts to provide for electric utility services includes, in case such electric utility services are to be furnished to the Commission by the Tennessee Valley Authority, authority to contract with any person to furnish electric utility services to the Tennessee Valley Authority in replacement thereof."

We believe this provision is foreign to the principal purpose of this act which is to control the production and use of fissionable material. Experience demonstrates it has seriously interfered with proper consideration of the act by the Congress and has greatly lessened public understanding of the more fundamental paramount issues in the control of atomic energy. Accordingly, it is urged that this provision be eliminated from the act.

FEDERAL POWER COMMISSION INVOLVEMENT

In section 272 of the act there is a somewhat redundant section reconfirming a provision of the Federal Power Act that every licensee who transmits such electric energy in interstate commerce shall be subject to the regulatory provisions of the Federal Power Act, inasmuch as electric utilities engaged in interstate commerce are already subject to the regulatory provisions of the Federal Power Act. This provision, as it now stands, is probably unnecessary to this act. However, it may well be the case that the public interest in the production and utilization of nuclear energy for power production is closely parallel to the public interest in development of power from hydroelectric sources. If so, then there is reason to have such applications for power generation reviewed by the Federal Power Commission in the same manner as hydroelectric power generation applications are presently reviewed. In this manner the greater experience of FPC might be substituted for some of the licensing controls by AEC.

Representative DURHAM (presiding). Thank you very much. You made a very fine statement, and a very informative one.

Mr. RADIN. Thank you.

Representative DURHAM. You pointed out some things there that solve some of our problems.

Representative PRICE. Mr. Chairman, I would like to comment on Mr. Radin's statement, which I regard as a fine statement, that I anticipate our reactor subcommittee will, upon the conclusion of these hearings, go into action and probe many of the items you mentioned in here will be further reviewed.

Mr. RADIN. We certainly hope so. We are particularly anxious to see that April 1 deadline is extended or eliminated, and also that the committee not abandon the reactor development program itself and place all of the burden on nongovernmental sources, because we think it is extremely important to push this program forward as fast as possible. We don't think all that work can be undertaken at this time.

Representative DURHAM. I think you can be assured, of course, that Mr. Price is the chairman of the subcommittee, and has given the reactor program the most attention, realizing that was the heart of the thing. We realize that we have not reached the point where we are perfect in the reactor field.

Representative HOLIFIELD. I think your two points are well taken. The April 1 deadline is something that should be gone into very thoroughly by this committee. The second point, it is provided in the act that the Government cannot depend on just letting this program lag. If we do not get the proper kind of responses to the different types of reactors that seem feasible, I agree with you that the Government should go ahead with experimental work just like they have in the past few years, making available to all of private industry and public power people the results of their research and development. We cannot afford to be outdistanced in this field by foreign powers.

Mr. RADIN. I heartily concur.

Representative DURHAM. Any further questions? If not, thank you very much, Mr. Radin.

Mr. RADIN. Thank you, sir.

Representative DURHAM. A supplementary statement by Mr. Murray S. Levine, who testified on February 8, will be made a part of today's record.

STATEMENT BY MURRAY S. LEVINE, CHAIRMAN, NEW YORK COMMITTEE ON ATOMIC INFORMATION

My name is Murray S. Levine. I am an attorney in New York City and my address is 61 Broadway. I am chairman of the civil defense committee of the Federal Bar Association and chairman of the New York Committee on Atomic Information, which was founded in 1948 for the express purpose of creating an awareness on the part of the people of New York City that atomic energy was their business and within the realm of their understanding. My connection with atomic energy began in the war years when I served as an Army officer under General Groves at Oak Ridge, Tenn.

Today the New York committee is more of a study group than an active educational enterprise, but I am still intensely interested in atomic education for I consider it one of the essential requirements of the American way of life in these revolutionary times.

I am not speaking here as a representative of either organization. My remarks here were prepared with the help of Dr. L. C. Longarzo whose efforts in our religious and welfare committee are well known to many of you.

I have no financial or political interest in the atom. I have no desire to work for the Government or run for office and I am not thinking about any investments in atomic power. My main concern, and there are millions of people in this country who are as concerned as I am, is about the life and death possibilities of atomic energy, the hope and fear it represents, and I have the belief that sound public education in this field would dispel some of the misery and some of the hysteria that presently surrounds this subject and prevents clear thinking about national survival.

To a great extent the New York committee was formed because we instinctively knew in 1948 what you so wisely set forth in the Atomic Energy Act of 1954 in the two words "public understanding." We began our activities in a vast uncharted area, we proceeded by trial and error, but we are proud and sometimes amazed by what we have actually achieved with little capital and facilities.

We sold the city of New York and the Federal Government and its atomic contractors, the idea of an atomic exhibit which was held in the Grand Central Palace, on Lexington Avenue, in New York. This was the first and largest of its kind ever held and was seen by a million people in the New York area. Most of that exhibit was later sent to Oak Ridge where it comprises a good part of the American Museum of Atomic Energy. Many of these exhibits still travel to State fairs and other places where they can serve to arouse curiosity and to give the A B C's of the age we live in.

Some of the members of our organization were concerned that the New York City schools and textbooks on physics were hopelessly behind the times. We helped to sponsor seminars for New York City schoolteachers to bring them up to date on the structure of the atom as it is now perceived.

The committee has run a speaker's bureau and arranged lectures and panel discussions for over 250 civic groups and organizations around New York City.

We have published, either in print or in mimeographed form, some 35 special papers which have been distributed at nominal cost to schools, libraries, and colleges in practically every State in the country, and to other countries. I brought three specimen copies of these papers with me as an example of the work we have done. I would not want to suggest that these papers belong in the record, but the titles indicate the diversification of our studies. Here is a Symposium on Atomic Energy Progress which was held at Fordham University. Here is one on Atomic Energy and Patent Law. Here is another on Civil Defense Legislation in the Atomic Age.

Through our religious and welfare subcommittee we sponsored numerous meetings in which representatives of the three major religious faiths participated At these meetings there was discussed the ethical, philosophical, and religious implications of atomic energy. We have a record of some of these meetings which indicates a common tie of all religions in days of common danger. I personally was very much impressed by the unity and agreement among our religious leaders on the moral questions raised by this awsome weapon. For example, an analysis done by Rabbi Gordon, who represented the New York Board of Rabbis, and a subsequent article published by Bishop Connell of the Catholic Church showed that their reasoning was very similar and almost identical. Incidentally, if you have never read the statement by the Protestant Council of Churches on the Christian Conscience and Weapons of Mass Destruction, I urge you to look into it as I think you will find it rewarding.

I would like to point out that when the decision was made some years ago to make the H-bomb we now know about the discussions and the meetings of scientists, atomic energy officials, and military leaders prior to making the decision. But it is my impression that due to the State of secrecy and lack of public understanding we went into this enterprise with little or no guidance from the spiritual side. Don't misunderstand me. I do not criticize the decision to make the H-bomb. But I feel we have lost a good part of the good will in Asia which had been built up for us by missionaries and I think one reason for this is that our policy has been decided, not by the whole people but by military and official leadership operating in a vacuum away from the important considerations of the humanitarian and spiritul questions involved.

Another activity in which we probably put more man-hours than any other single group in the country, is the civil defense problem. Long before local officials in New York City were concerned about defending Manhattan against atomic attack, we studied the problem with great regularity and, as you may recall, some of us testified before congressional committees years back, even before our city officials were concerned about the matter.

To be absolutely candid with you, I'd say that the New York committee has not done very much considering the challenge of this field, and this is exactly my point. Under the conditions of secrecy and resulting lack of public understanding that has prevailed it has been very hard for any group such as our to combat public apathy and indifference. Again and again our leaders tell us that this is a revolutionary new age and it was perfectly obvious that, as H. G. Wells said, "Human history becomes more and more a race between education and catastrophe." But what agency and what leadership is really doing the job that needs to be done in public education for the responsibilities of the atomic age? Our committee has been a small organization. But what city has a larger one? Where is there any widespread education under way? Is this lag due to past information policies of the Government? I believe it is.

I would like to make some general remarks on the state of atomic understanding in this country.

In the field of civil defense we, as a people, are almost completely unprepared. This would be a dangerous statement to make ordinarily, as one that would give comfort to the enemy, but I believe that Russia knows that our people are not properly prepared and it may be the prime contributing factor in Chinese arrogance and the Kremlin's belligerency.

I live in New York, one of the most congested cities in the world and one of the hardest to defend in the atomic age. Our traffic is so congested that if a fuse blew out in one of the autombiles traveling on one of our main arterial highways, in a few minutes it would choke up traffic for miles. What would happen to New York if an atomic bomb blew up? What would happen to traffic, our people, and the life of our city? Gentlemen, I was born and raised in New York and I know my neighbors around me, and I say without hesita-

tion that if we were attacked New York would suffer one of the greatest human tragedies in the history of the world. Why has this problem been neglected in New York? Why has our mayor and his administrators neglected this prime problem of the day? It is my opinion that it is not only a lack of public understanding of the implications of our new defense requirements, but a lack of public understanding of how to meet the psychological and physical problems involved.

And now another point. We take for granted that science and science education are going forward in this country. That is naive. When we looked into it we found that New York's high-school teachers required a complete new orientation of physics in the atomic age. We helped them get educated. But if you want a subject ripe for investigation I suggest that you look into the current threatened shortage of science teachers themselves. We are not turning out the kind of schoolteachers who will locate the kind of talent we need to keep America ahead. You can get the facts from the National Education Association.

Another weakness is the fact that students graduationg from physics courses in college today express a reluctance to work for the Government. They would prefer to work for universities or for industry. You can get these facts from the Scientific Manpower Commission. Why? In my opinion it is bureaucracy, redtape, and the fact that Government installations frequently are located in remote localities that have something to do with it. But you know that security procedures have a lot to do with it, too. We are not only driving the older brains out of this Government work, but we are keeping young fresh talent from Government service, whether for peaceful power or for bombs.

I would not presume to tell you gentleman about this, except that I feel that there is something terribly wrong here. It seems to me that Washington officials do not have the understanding of the problem of getting scientists to contribute fully to the national security. Dr. Vannevar Bush, a man who I respect and admire, has spoken loudly about this subject. He voiced fear. I suggest you heed his words.

I have known scientists now for 12 years and I know of no more loyal and devoted group of men. And, in addition, the mere fact that they probe into the secrets of nature has made them men of deep humility and has given them the humbleness so badly needed in these trying days. Gentlemen, I am convinced that they want to contribute to the protection of this country's freedom. I know that many of them have been naive in the days when they were locked up in their ivory towers, but the great majority of them have developed into good, conscientious citizens since then. What bothers me more is that I believe that we are naive about science, and about scientists. Gentlemen, the one great lesson taught me when I was at Oak Ridge was that we could control and regulate the scientist as a human being through regulations, rules, and criteria. But we could never make them think with criteria, rules, and regulations.

Now the new law says that dissemination of information should be "encouraged."

In the interests of public understanding, an understanding which I believe is vital to our survival, I urge this committee to keep an eye on the manner in which the AEC lives up to this clause of the act.

The previous legislation was negative, not positive. It is much easier for a Government agency to follow negative restrictions than it is for it to live up to the positive injunction to get into this field of promoting intelligent public discussion. The AEC lived up to the spirit and letter of the previous law, I am sure. They will need prodding to live up to the spirit of this law.

The reports published by the joint committee have been very useful in the field of education. I refer not only to the committee prints on hearings, but to special staff studies, which have been very well done and which I hear highly praised by scholars and businessmen interested in atomic energy.

I would not recommend that all committees of Congress go into this kind of publishing business. But you have an extraordinary job. I do not think that it is only a matter of your being a watchdog for the Commission. There are some jobs which are best done, I think, by your committee, since you gentlemen are directly and continuously responsible to the people. In the Department of Agriculture their publications are enormous, and they should be. But there are many private agencies operating in this field. Who is operating in the field of atomic education?

Civil defense does a limited job in its field. The military services have the task of educating soldiers and sailors to possibilities of atomic war. Incidentally,

there is another ripe subject for investigation. Secrecy has kept the military themselves from becoming educated, and I think you will be appalled to find how little the private soldier knows about atomic weapons. It will do no good to have some highly trained specialists in the Pentagon if an atomic war breaks out in the Far East and our soldiers are ignorant of what they are delivering and having used against them.

The new organizations, like the Atomic Energy Forum, are doing a good job for business, and their publications are spreading atomic knowledge. But their interest is mainly confined to industry and atomic power. The AEC, like any executive agency, tends to look out for AEC interests. It certainly has given up the responsibility it once felt for general education.

You may feel this is not in your province, and that this is one more burden to place upon a committee which already carries perhaps the heaviest responsibilities of any committee save that on foreign relations.

But who is taking thought to see that our people are truly informed? The newspapers yesterday were full of a sensational story about a radioactive fallout in the Pacific, and what range radioactivity would extend to, following the explosion of the newer bombs. Don't the American people deserve to be told the facts of life, and told them not merely in the fine print of technical reports, but fully informed in a well-rounded educational program?

Today we stand between the realities of Russia and the realities of the atomic age.

This day we are all wondering what is happening to Malenkov—the secrecy of the Kremlin keeps us from knowing facts important to our survival.

But it is our own secrecy and our own blindness which keeps us from knowing the other end of the problem. We have ourselves to blame if we do not see that a positive effort is made to inform America of the true facts on atomic energy. Frankly, gentlemen, if we keep on with combat soldiers ignorant of the bomb, with millions of city dwellers in New York and elsewhere indifferent to defense of their city—some day the people may find you to blame.

This committee is the only place where the representatives of the entire people meet the facts of the new age face to face.

You know already what I am telling you—that at Oak Ridge you are in one world, and when you go home to talk to citizens you are in another world. The people do not know and do not understand the world we live in.

I suggest that education is basically what has made this country so different and so much stronger than other countries.

I urge upon you that you have a special responsibility to see that this new law really results in a new look in public understanding of the great danger and the great promise of this new era.

Representative DURHAM. The meeting is adjourned to call of the Chair.

(Thereupon at 4:50 p. m., Thursday, February 10, 1955, a recess was taken subject to call of the Chair.)

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